Hospital Library

VOLUME 17 NUMBER 2

ARCHIVES
OF
DERMATOLOGY AND SYPHILOLOGY

EDITORIAL BOARD

WILLIAM ALLEN PUSEY, Chicago
WILLIAM T. CORLETT, Cleveland JAY FRANK SCHAMBERG, Philadelphia
MARTIN F. ENGMAN, St. Louis GEORGE M. MacKEE, New York
CHARLES J. WHITE, Boston

FEBRUARY, 1928

PUBLISHED MONTHLY BY AMERICAN MEDICAL ASSOCIATION, 535 NORTH DEARBORN STREET, CHICAGO, ILLINOIS. ANNUAL SUBSCRIPTION, $8.00

Entered as Second Class Matter, October 30, 1917, at the Postoffice at Chicago, Illinois, Under Act of Congress of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on July 29, 1918.

CONTENTS OF PREVIOUS NUMBER

JANUARY, 1938. NUMBER 1

Dermo-Epidermic Interchanges as Controlled by the Study of Melanic Pigment, the Esters of Cholesterol (Xanthoma) and Hematoidin (Schamberg's Disease). L. M. Pautrier, with the Collaboration of G. Lévy and A. Dias, Strasbourg, France.

The Use of Gentian Violet Locally in Dermatologic Conditions. Albert R. McFarland, M.D., Rochester, N. Y.

Eponyms of Dermatology: Second Series. Herman Goodman, M.D., New York.

Fungi and Fungous Diseases: Lecture IX. Aldo Castellani, C.M.G., M.D., New Orleans.

Pemphigus Chronicus with Significant Agglutinogens and Postmortem Bacteriologic Observations: Report of a Case. Ernest L. McEwen, M.D., Chicago.

Correspondence:
Tributes of Carcinoma as Concomitant Syphilis. E. W. Ahramowitz, M.D., New York.

Editorial:
Society Transactions.

Abstracts from Current Literature.

Society Transactions:
Brooklyn Dermatological Society.
St. Louis Dermatological Society.
New York Academy of Medicine, Section on Dermatology and Syphilis.
Philadelphia Dermatological Society.
American Dermatological Association.

Book Reviews.

Directory of Dermatologic Societies.

Index to Current Literature.

COPYRIGHT, 1938, BY THE AMERICAN MEDICAL ASSOCIATION

Archives of Dermatology and Syphilology

VOLUME 17 FEBRUARY, 1928 NUMBER 2

AN INTRACUTANEOUS METHOD OF TREATING ARGYRIA

A PRELIMINARY REPORT *

ARTHUR WILLIAM STILLIANS, M.D.
AND
THEODORE KENNETH LAWLESS, M.D.
CHICAGO

Our interest in this problem was aroused by the failure of general treatment in a pronounced case of argyria in a teacher who had been given mild silver protein by mouth for the treatment of gastric ulcer. After an exploratory laparotomy the medication was begun, 5 grains (0.33 Gm.) being given three times daily for about three months. The patient then noticed a change in the color of her skin, but because she obtained relief from the severe gastric pains, she continued the use of the drug for a year longer, taking only 5 grains once a day. Thirteen years after this she consulted one of us (A. W. S.). At that time her face was a dark slate color, the hands were light gray, and the discoloration of the rest of the skin was slight. Some discoloration of the sclerae and the buccal mucous membrane was also present. A month's treatment with sodium thiosulphate in large dosage by mouth and intravenously was without result. A second month's treatment with methenamine given intravenously, following the experience of Olson,[1] was also without noticeable result, when the color of the face was compared with a strip of paper colored to match the face at the beginning of treatment.

Rabbits were given mild silver protein solution intravenously and soon developed a pronounced argyria; however, they usually died soon afterward from some intercurrent infection. The fresh tissues of these animals, those from the kidney being selected because of its especially heavy impregnation, were then treated by ionization in a solution of potassium iodide, with a slight but definite paling of the color after an hour or more of treatment. The general staining of the tissues of the

* From the Department of Dermatology and Syphilology, Northwestern University Medical School.

* Read at the Fiftieth Annual Meeting of the American Dermatological Association, May 12 to 14, 1927.

1. Olson, G. M.: Argyria Localis Due to Organic Silver Preparations, J. A. M. A. **69**:87 (July 14) 1917.

rabbit suggested that to show prompt effect, the treatment should be local, for the skin, because of its exposure to light, might be the last of the tissues to fade under general treatment.

Because of the time consumed in the preparation of rabbits, the uncertainty of their tenure of life and the difficulty of keeping the hair removed from their skins, we began the intracutaneous injection of mild silver protein solution into our own arms. A typical local argyria was soon obtained. For some time, with the cooperation of the department of physiotherapy, portions of these areas were subjected to ionization with potassium iodide solution on the positive pole. A definite result was not obtained.

One of us (T. K. L.) then proposed using a photographic reducing agent, consisting of potassium ferricyanide and sodium thiosulphate dissolved in water. As nothing could be found in the literature concerning the toxicity of the ferricyanide, it was necessary to determine this. Rabbits were given an aqueous 2 per cent solution of the drug intravenously. All that received 1/22500 of the body weight died. One rabbit, after receiving an injection of 1/23000 of his weight, had convulsions but recovered in a short time. Others who received doses up to 1/25000 of the weight did not show any effect. However, one that was given only 1/32000 of his weight had severe convulsions and was apparently dead but was revived under artificial respiration. This apparent irregularity in the action of the drug may be due to a variation in the rapidity of injection, which necessarily consumes time, and the action of the drug is evanescent. The addition of sodium thiosulphate up to 1.2 Gm. for a rabbit weighing 3,375 Gm. did not reduce the toxicity of the ferricyanide to a noticeable degree.

A 2 per cent solution of potassium ferricyanide was injected intracutaneously into the rabbit, without injury to the skin. A 1 per cent solution was then injected intracutaneously into the area of argyria without causing either damage or improvement. The same was true of a 10 per cent solution of sodium thiosulphate. Then a mixture containing 1 per cent of potassium ferricyanide and 6 per cent of sodium thiosulphate was injected intracutaneously and a few days later, after the reactionary erythema had subsided, a clear area was seen, slightly smaller than the wheal produced by the injection. Weaker solutions of ferricyanide down to one fourth of 1 per cent have given similar good results, if the thiosulphate has been kept at 6 per cent. Stronger solutions of thiosulphate cause the mixture to degenerate rapidly and to turn blue. The 6 per cent solution, when mixed with the ferricyanide, causes a slower reaction, and the mixing of the two solutions in small quantities, so that they will not stand more than a minute before being used, does not interfere with the activity of the combination. Sometimes a slight hemorrhage occurs in the wheal, leaving a greenish stain

which is soon absorbed. In the track of the needle of one of our early injections, an oval bluish stain was left and has not disappeared. Thinking that this might have been due to rust on the needle, we have since used a platinum needle and have not had further trouble of this kind. A small scar at this spot may have caused the stain by interfering with the lymphatic circulation. The original clear spots have remained clear for more than a month and are still as clear as the areas recently treated. We are told that this method of reducing negatives is equally successful with old negatives, so we trust that there will not be a failure in treating patients with skin disease of long standing.

From M. E. H. Volwiler of the pharmacologic department of the Abbott Laboratories, who has made a special study of the organic silver preparations, we have received the following statement as to the modus operandi of the reducing fluid: "The action is probably due to the combination of the silver with the potassium ferricyanide to give silver ferricyanide. The sodium hyposulphite (sodium thiosulphate) combines with this to give silver sulphide, which is gradually eliminated as such. The mechanism of this last step does not seem to be understood, nor is it certain just how sodum thiosulphate acts. It may be that silver sulphide is not actually the product which is eliminated. That has been suggested as the mechanism of the removal of heavy metals from the body by sodium thiosulphate and it seems as logical as any."

SUMMARY

1. Attempts at general treatment of argyria often fail to produce noticeable improvement.

2. Ionization with a solution of potassium iodide did not give satisfactory results.

3. Potassium ferricyanide is not an exceedingly toxic drug, and its effects are quickly dissipated. It does not damage the skin when injected into it in 1 per cent strength.

4. A mixture containing one fourth of 1 per cent potassium ferricyanide and 6 per cent sodium thiosulphate injected intradermally quickly removes the bluish discoloration of argyria.

We wish to thank Prof. C. J. Farmer of Northwestern University Medical School and Mr. Carl Nielsen of the pharmacologic department of the Abbott Laboratories for their kind interest and assistance in regard to the chemistry of the method. To Prof. J. S. Coulter of the Medical School and Miss I. Smith, his assistant, we owe our thanks for help in the ionization experiments, and we also thank Miss B. Culka, technician in our department, for her untiring and thoughtful assistance.

LYMPHOGRANULOMATOSIS CUTIS

HODGKIN'S DISEASE *

HIRAM E. MILLER, M.D.
SAN FRANCISCO

Lymphogranulomatosis is a systemic disease that may present a great variety of early clinical signs and symptoms. This is particularly true in regard to the skin manifestations associated with it. A thorough study and a correct interpretation of these cutaneous symptoms may give the first clue as to the existence of the disease. In some patients, an eruption on the skin may precede the generalized adenopathy by a period of many months or years. There are other patients whose cases the internist, the dermatologist and the pathologist are unable to classify definitely before necropsy. In this paper, I shall present the report of a few of these cases, with dermatologic aspects of particular interest.

In 1832, Hodgkin [1] described seven patients who had, in common, an enlargement of the lymph nodes of the body. In the years that followed, Virchow,[2] Cohnheim,[3] Kundrat,[4] Sternberg [5] and Reed,[6] respectively, divided the group into the leukemias, the pseudoleukemias, lymphosarcoma and lymphogranulomatosis, or true Hodgkin's disease.

In this paper, the name "lymphogranulomatosis" is used in preference to Hodgkin's disease. The condition that Hodgkin originally described is common to many diseases. The term "Hodgkin's disease" is practically an entity in the American literature, mainly because of the classic paper of Dorothy Reed. In the foreign literature, however, and in the "Quarterly Cumulative Index" of the American Medical Association, the name "lymphogranulomatosis" is the one of choice.

Lymphogranulomatosis, as the name signifies, is a granulomatous process of lymphatic tissue. It attacks males two or three times as often as females; it is most common in the third and fourth decades of life; it involves most of the lymph nodes of the body as well as of the liver and spleen, while the lymphatic systems of the gastro-intestinal tract, the urinary tract and the skin usually escape.

---

* From the Department of Dermatology, University of California Medical School.

* Read at the Fiftieth Annual Meeting of the American Dermatological Association, May 12-14, 1927.

1. Hodgkin: Med. Chir. Tr. **17**:68, 1832.
2. Virchow: Med. Ztg., Berl. **15**:163, 1846, cited by Simonds: Review of Hodgkin's Disease, Arch. Path. **1**:394 (March) 1926.
3. Cohnheim: Virchows Arch. f. path. Anat. **33**:451, 1865.
4. Kundrat: Wien. klin. Wchnschr. **6**:211, 1893.
5. Sternberg: Ztschr. f. Heilk. **19**:21, 1898.
6. Reed: Bull. Johns Hopkins Hosp. **10**:133, 1902.

The etiology of the disease is obscure. It may be a type of tuberculosis of the lymph nodes, as Sternberg [5] believes; an infectious process, as Clarke,[7] Reed,[6] Longcope [8] and others point out; a neoplasm, as Gibbons,[9] Mallory [10] and Warthin [11] contend; a disease of the hemolytopoietic system, as Symmers [12] believes, or perhaps it is better to accept Ewing's [13] point of view when he states that he thinks the origin and clinical significance of the disease are utterly obscure.

Histologically, the granulomatous process is made up of small and large lymphocytes, endothelial and epithelioid cells, fibroblasts, mononuclear and multinuclear giant cells, eosinophils and plasma cells. The giant cells possess an abundant cytoplasm and one or more round or irregularly shaped nuclei at or near the center of the cell. The eosinophils are probably more numerous if there is an associated pruritic eruption on the skin. The blood picture is that of a secondary anemia, with a slight leukocytosis and a high percentage of transitional cells.

There are two general types of eruption associated with lymphogranulomatosis: the nonspecific lesions, lacking the characteristic histology of the disease, and the specific or true lymphogranulomatous infiltrations. The nonspecific lesions include generalized pruritus, lichenification, urticaria, prurigo-like nodules, bullous eruptions, exfoliating erythrodermias, pigmentation, loss of hair, changes in the nails, etc. They are often designated by the French [14] as lymphogranulids, in that they are associated with the disease but are of toxic origin. They are comparable to the tuberculids and leukemids. The specific lesions may be well localized or disseminated infiltrations; they may resemble prurigo nodules or gummas; they may be deep or superficial, pruritic, ulcerated, or secondarily infected.

The nonspecific eruptions are of frequent occurrence. Zeigler [15] reported that 25 per cent of all cases presented lesions of the skin of one type or another. Westphal [16] reported 15 per cent; Cole [17] reported 40 per cent, and in a series of fifty-five patients from the University of California Hospital, twenty-two, or 40 per cent, exhibited changes in the skin of the following types: Generalized pruritus, five; lichenification,

7. Clarke: Brit. M. J. **2**:701, 1901.
8. Longcope: Bull. Ayer Clin. Lab. Penn. Hosp. **1**:4, 1903.
9. Gibbons: Am. J. M. Sc. **132**:692, 1906.
10. Mallory: The Principles of Pathologic Histology, 1914, p. 326.
11. Warthin: J. M. Research **44**:659, 1923-1924.
12. Symmers: Am. J. M. Sc. **167**:157, 1924.
13. Ewing: J. M. Research **44**:659, 1923-1924.
14. Nanta and Chatellier: Ann. de dermat. et syph. **6**:682 (Nov.) 1925.
15. Zeigler: Berl. klin. Wchnschr. **48**:1917, 1911.
16. Westphal, quoted by Bunting and Yates: Bull. Johns Hopkins Hosp. **28**:151 (April) 1917.
17. Cole, H. N.: Hodgkin's Disease, J. A. M. A. **69**:341 (Aug. 4) 1917.

one; prurigo-like nodules, one; pigmentation (not from the roentgen ray), eight; purpuric eruptions, two, and localized eczema, five. This large percentage of toxic eruptions is not remarkable when one considers the function of the lymphatic system of the skin and its marked impairment in this disease.

In 1906, Grosz [18] undoubtedly describes the first example of a true lymphogranulomatous infiltration of the skin. Since that date, Brunsgaard,[19] Arndt,[20] Sibley,[21] Hirschfeld,[22] Alderson,[23] Cole,[17] Doesseker,[24] Fox,[25] Langley,[26] Grossman and Schlemmer,[27] Shelmire,[28] Barron,[29] Saafeld,[30] Reinsberg and Kadlicky,[31] Arzt and Randak [32] and Linser [33] add additional reports of cases. A few of them are true lymphogranulomatosis of the skin in that the lesions developed in the true skin. Many of them, however, are simply extensions from neighboring glands or deep subcutaneous lesions. In the group of fifty-five cases, there was only one patient with a true lymphogranulomatous infiltration of the skin. In private practice, I have encountered another one. There are also two borderline cases that I shall present in some detail.

REPORT OF CASES

CASE 1.—*History.*—S. S., a Turkish man, aged 34, was admitted to the University Hospital complaining of peeling, redness and itching of the skin associated with a swelling of the glands in the groins, armpits, etc. He was a cook and general laborer who had done some professional wrestling and swimming. He was born and had lived in Turkey until he was 12, when he came to the United States. He spent two years in Boston and the remainder of the time in various parts of California. He had malaria at the age of 24 and typhoid two years prior to being admitted to the hospital. He had had gonorrhea four or five times from the age of 14 to 24, and a sore on the penis at the age of 23, without a rash or sore throat.

---

18. Grosz: Beitr. z. path. Anat. u. Path., 1906, p. 39.
19. Brunsgaard: Ann. de dermat. et. syph., 1910, p. 413.
20. Arndt: Virchows Arch. f. path. Anat. **209**:432, 1912.
21. Sibley: Proc. Roy. Soc. Med. **1**:12, 1922.
22. Hirschfeld: Verhandl. d. deutsch. path. Gesellsch. **15**:75, 1912, cited by Simonds (footnote 2).
23. Alderson: J. Cutan. Dis. **35**:481, 1917.
24. Doesseker: Arch. f. Dermat. u. Syph. **76**:123, 1919.
25. Fox, H.: Lymphogranulomatoses of the Skin in Hodgkin's Disease, Arch. Dermat. & Syph. **2**:578 (Nov.) 1920.
26. Langley: Brit. M. J. **1**:667, 1921.
27. Grossmann and Schlemmer: Wien. Arch. f. klin. Med. **4**:573, 1922, cited by Simonds (footnote 2).
28. Shelmire: South, M. J. **18**:511 (July) 1925.
29. Barron, M.: Unique Features of Hodgkin's Disease, Arch. Path. **2**:659 (Nov.) 1926.
30. Saafeld: Arch. f. Dermat. u. Syph. **148**:158, 1924.
31. Reinsberg and Kadlicky: Acta dermat-vener. **5**:477, 1924.
32. Arzt and Randak: Acta dermat-vener. **6**:16, 1925.
33. Linser: Arch. f. Dermat. u. Syph. **149**:349, 1925.

Fig. 1 (case 1).—Generalized toxic eruption that preceded development of tumors of the skin.

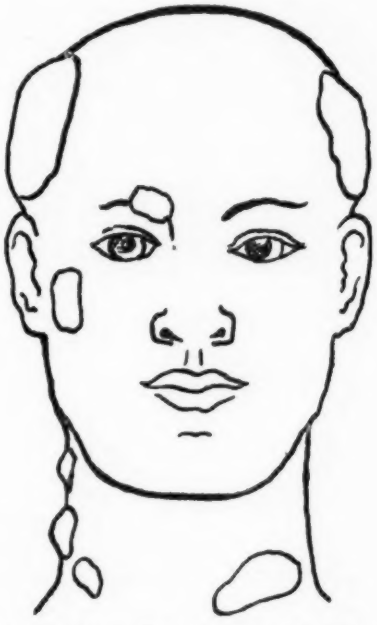

Fig. 2 (case 1).—Tumors on scalp and neck.

About four years prior to his admission to the hospital, the skin began to itch whenever he became warm or after he had eaten sweets. This condition gradually became more severe, and within a year the skin had become universally red and thickened, with an extensive exfoliation of fine branlike scales and an associated generalized adenopathy.

Examination.—The man was well developed, with a marked edema of the face and trunk and a moderate edema of the extremities. The skin over the entire body was reddened and markedly pruritic, and there were deep fissures over most of the flexures. Scattered over the trunk and to a less extent over

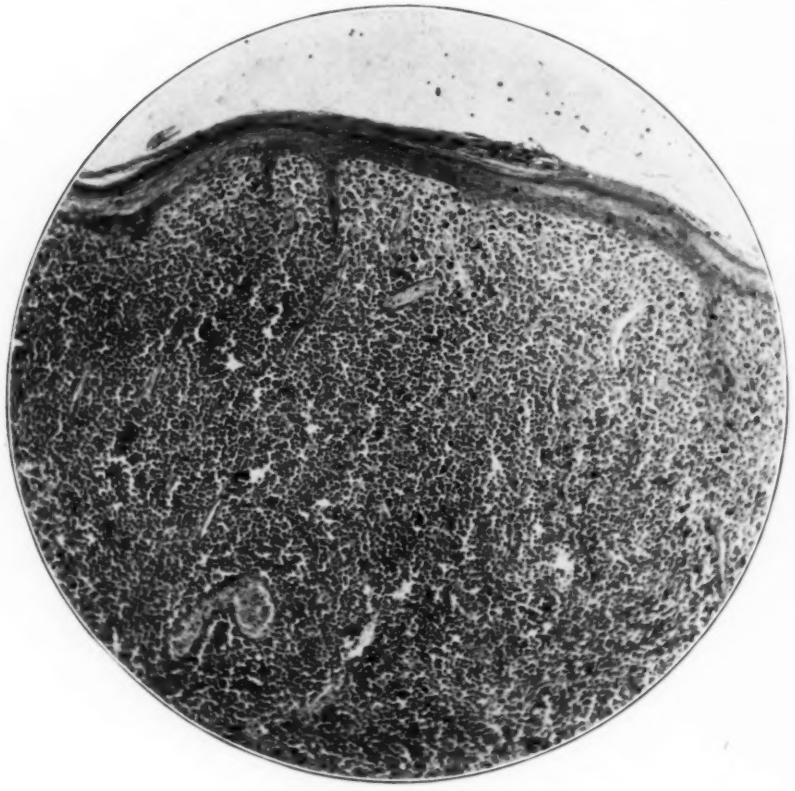

Fig. 3 (case 1).—Tumor in skin; low power.

the body were many raised infiltrated plaques, measuring about 2 by 2 cm. These were most numerous on the trunk. They were in the true skin, and were not located subepidermally. The nails were markedly thickened and "moth eaten." There were only a few stumps of hair on the scalp and upper lip. The superficial lymph nodes varied in size from that of a lima bean to that of a walnut. They were all discrete and were not painful.

In the few weeks before death, the edema subsided and the skin, especially over the extremities, was atrophic. The infiltrations covered about one third of the skin surface of the body; those on the temples, scalp and neck were the size of chicken eggs. Many areas over the back were ulcerated and secondarily infected. The patient died in this condition about four and one-

half years after the onset of the disease. The blood count showed 3,400,000 red cells; 18,000 white cells, with 65 per cent neutrophils; 5 per cent eosinophils; 7 per cent lymphocytes and 23 per cent large mononuclear lymphocytes. The urine showed a slight trace of albumin, no sugar, and occasional granular and hyaline casts.

Necropsy.—At necropsy, all of the lymph nodes were found to be markedly enlarged, and the spleen was also considerably enlarged. With the exception of these changes and those reported clinically in the skin, the other organs were essentially normal.

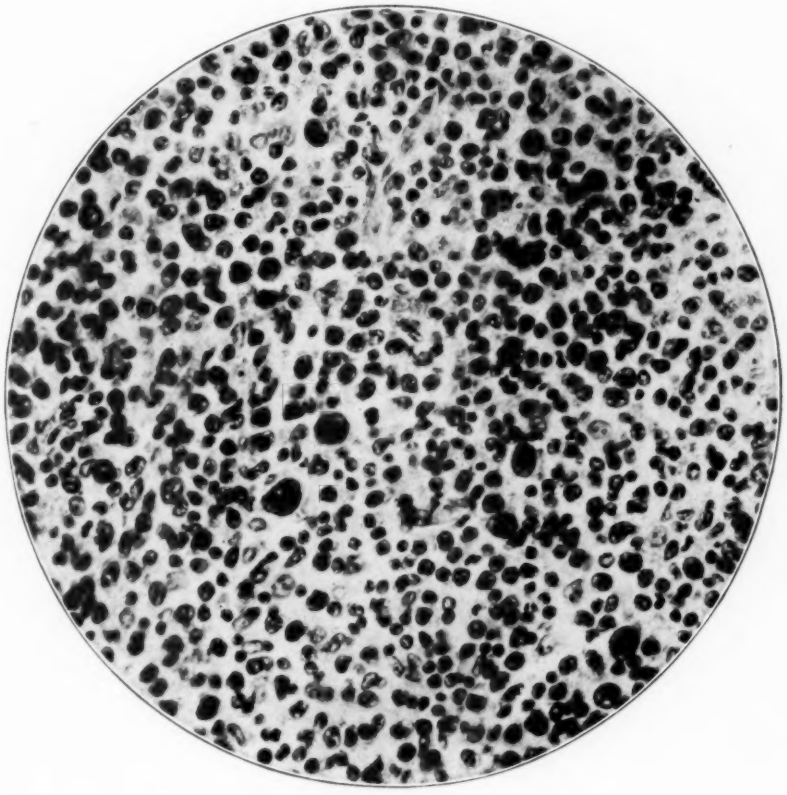

Fig. 4 (case 1).—Tumor in skin; high power.

Histologic Examination.—Sections of skin were removed from the various tumors for histologic examination. They all revealed practically the same pathologic picture.

Examination was made with low power magnification (Spencer Eye-Piece 10, objective 16 mm.), and hematoxylin and eosin stain were used. The epidermis was markedly thinned and consisted of from five to six layers of flattened epidermal cells. The rete pegs were entirely obliterated. There was an infiltration in the corium, extending from the epidermis to the utmost depths and entirely replacing the hair follicles, coil and sebaceus glands. The blood vessels were considerably increased in size and number.

Examination was also made with high power magnification (Spencer Eye-Piece 10, objective 4 mm.). The infiltration was one diffuse and more or less compact mass traversed here and there by dilated blood vessels. The cells consisted mainly of small lymphocytes having a large, circular, dark staining nucleus surrounded by a narrow zone of cytoplasm. There were many scattered large mononuclear lymphocytes, a few fibroblasts, epithelioid cells and eosinophils, but no plasma cells. There were numerous large irregular uninucleated cells and a few multinucleated ones, similar to those described

Fig. 5 (case 1).—Lymph node; low power.

by Sternberg and Reed. The coats of the blood vessels were only moderately thickened. Few mitoses were found.

Pathologic examination of the lymph nodes showed a complete loss of characteristic architecture. The general picture was the same as seen in the skin, except that there was more of a multiformity of cell types.

Summary.—The infiltration was granulomatous. The presence of large mononuclear and multinuclear cells in a lymphocytic infiltration with few mitoses favored the diagnosis of lymphogranulomatosis.

Treatment.—The patient was seen in 1916 before the extensive use of roentgen-ray therapy and, as a result, did not receive this type of treatment. Lotions, ointments, colloidal baths and arsenic in the form of solution of

potassium arsenite (Fowler's solution), sodium cacodylate and arsphenamine were given, without much benefit. Morphine was the only drug that gave relief in the last few months of the disease.

General Summary.—The generalized erythematous and pruritic eruption of from three to four years' duration in a young man, the fine bran-like scales, the generalized adenopathy, the ultimate loss of hair and nails, and the ulceration over points of pressure suggested the diagnosis of pityriasis rubra (Hebra type). The development of the nodules in the skin during the few months before death was against this tentative

Fig. 6 (case 2).—Generalized lymphogranulomatous infiltration of the skin.

diagnosis. The final diagnosis of lymphogranulomatosis was made only after examination of the microscopic changes in material obtained at necropsy.

This patient presented a generalized nonspecific eruption that preceded the development of lymphogranulomatous nodules by a period of three and one-half years.

CASE 2.—*History.*—B. D., a German, aged 62, was referred to me because of a severe generalized pruritus. He was a member of a religious order and had lived in a monastary in the southern part of the state since early manhood. He was born and had spent his childhood in Germany. As far as he could

remember, he had always been well up until the time of the present illness. His family history was unimportant.

About seven months before he was referred to me he began to have itching here and there over the body, especially when he became warm. This gradually increased in intensity for two months, when it became continual and uncontrollable. Three months previously, he noticed a beginning enlargement of the lymph nodes in the groins and axillae.

Physical Examination.—The man was well developed, with a red, thickened and scaly skin covering the face and entire body. The hands and feet were

Fig. 7 (case 2).—Section of skin; low power.

swollen and covered by a thickened and deeply fissured skin. There were no localized nodules or infiltrations visible. The skin of the entire body seemed to be infiltrated. The patient scratched incessantly and removed an enormous amount of branlike scales from his body in a short time. The body was entirely devoid of hair, except for a few shafts on the scalp and bearded region. The nails were greatly thickened and were covered with longitudinal striae. The superficial lymph nodes were all enlarged. Those on the neck were the size of pigeon eggs; in the axillae they were the size of chicken eggs, and in the groins, the size of an orange. They were all firm and discrete and were not painful. On physical and roentgen-ray examination, the glands in the mediastinum were found to be only slightly enlarged. The liver and spleen were

not palpable. Physical examination, except for the symptoms here described was essentially negative. The urine contained a faint trace of albumin and a few granular casts. The hemoglobin was 70 per cent; red blood cells, 3,420,000; white blood cells, 6,200; small lymphocytes, 35 per cent; large lymphocytes, 2 per cent; neutrophils, 61 per cent, and eosinophils, 2 per cent. The Wassermann reaction was negative.

Histologic Examination.—A piece of tissue was taken from the upper part of the back with the biopsy punch and a lymph node was removed from the axilla for histologic examination.

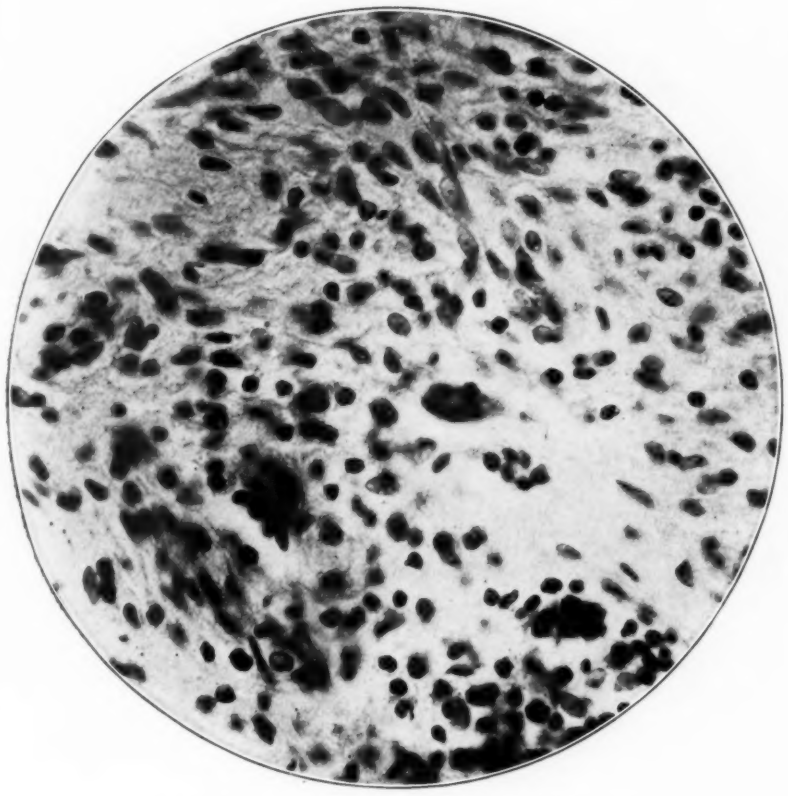

Fig. 8 (case 2).—Section of skin; high power.

Examination was made with a lower power lens (Spencer Eye-Piece 10, objective 16 mm.), and hematoxylin and eosin stain. The epidermis did not show any particular abnormalities. There was a diffuse bandlike infiltration extending directly from the basal layer of the epidermis into the corium for a distance equal to about five times the depth of the epidermis, where it stopped abruptly. It was more dense around the dilated blood vessels than elsewhere. The hair follicles and sebaceus glands appeared to be normal.

Examination was also made with a high power lens (Spencer Eye-Piece 10, objective 4 mm.). The bandlike infiltration was made up of a multiplicity of cell types. The preponderant one was an undifferentiated mononuclear cell

with a small central nucleus and an abundant cytoplasm. There were many scattered, poorly stained multinuclear cells and a few deeply stained ones. In some of these cells, the nuclei were grouped near the center of the cell, while in others they were near the periphery. There were numerous eosinophils and a few plasma cells. Throughout the infiltration were many fibroblasts. The blood vessels were apparently not increased in number, were moderately dilated and, as previously stated, were surrounded by a more dense cellular infiltration than was encountered elsewhere.

Pathologic examination of a lymph node showed a somewhat similar picture. It had lost its characteristic architecture. There were relatively few lympho-

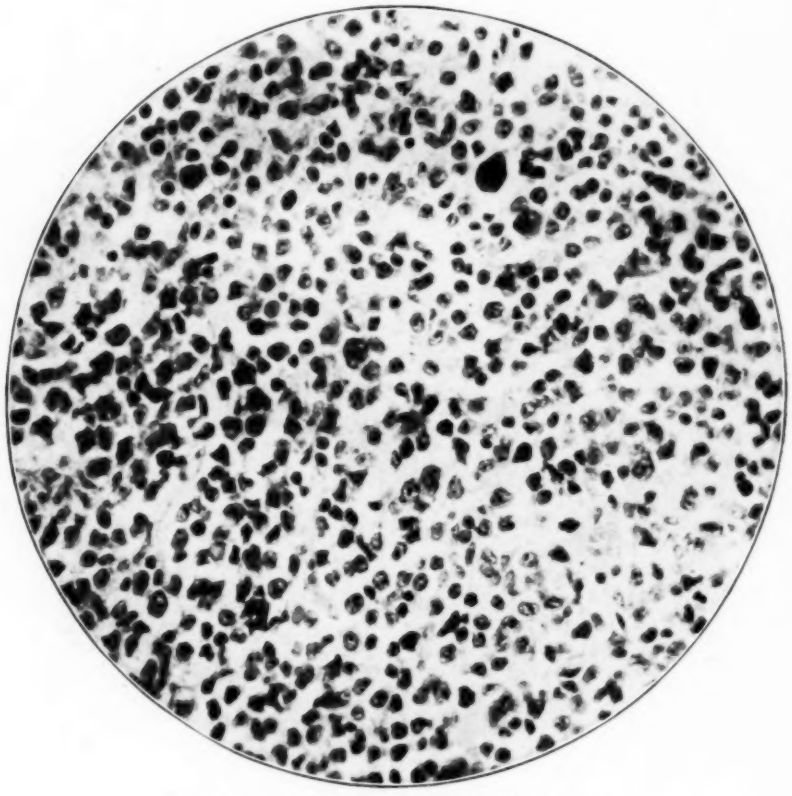

Fig. 9 (case 2).—Lymph node; high power.

cytes. There was a general increase in the size of the cells, the predominate cell being similar to that found in the skin. Many large mononuclear and multinuclear cells were present. There were only a few eosinophils and mitotic figures. The gland capsule was infiltrated.

Summary.—The infiltration was granulomatous. The multiplicity of cell types, the few mitoses, and the presence of large mononuclear and multinuclear cells of the reticulo-endothelial group favored Hodgkin's disease in contradistinction to leukemia or lymphosarcoma.

Treatment.—Unfiltered roentgen-ray therapy and ultraviolet rays were applied to the skin; the enlarged lymph nodes were treated with filtered

roentgen-ray therapy; soothing lotions, powders and colloid baths were prescribed, and sodium cacodylate was given hypodermically, all without the slightest change in symptoms or physical manifestations. The man returned to his monastary definitely unimproved, after being in the hospital for three months. He has not been heard from since.

General Summary.—The condition of this patient was unique, in that the infiltration was not in localized areas but covered the entire skin surface of the body, including the scalp, palms and soles. The eruption preceded any noticeable adenopathy by about four months. It was

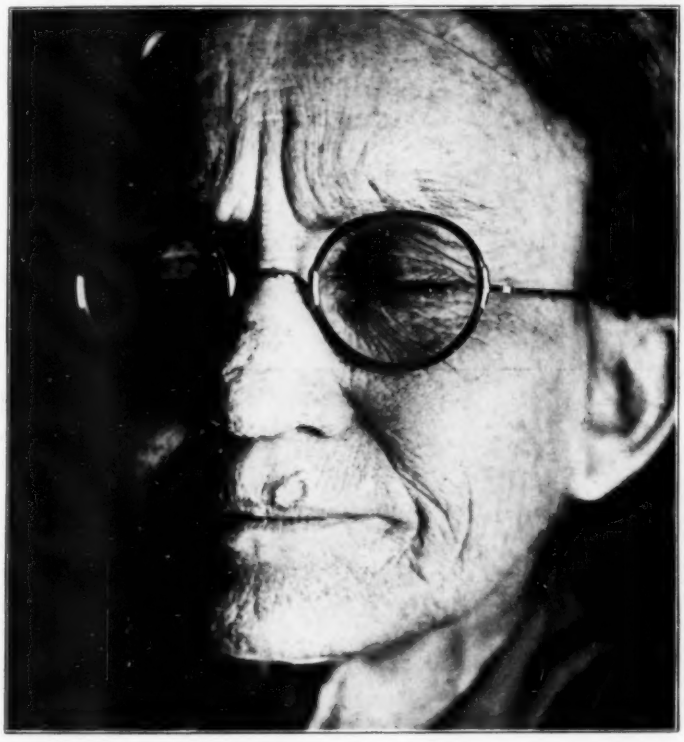

Fig. 10 (case 3).—Scars on nose from healed nodules. The lesion on the lip began as a nodule and healed in the center, leaving a ringed appearance.

probably nonspecific at first, in view of the fact that it was of a transient character. As the disease progressed, it became more extensive, was fixed in character and had the histologic picture of lymphogranulomatosis.

This patient, therefore, presented a nonspecific prelymphogranulomatous eruption followed in a few months by a specific or lymphogranulomatous one.

Case 3.—*History.*—M. E., an American woman, aged 56, had been under my care for the last eight years. Her family history was unimportant, except for

Fig. 11 (case 3).—Dactylitis during an exacerbation.

Fig. 12 (case 3).—Nodule on hip of one year's duration, with a few neighboring smaller lesions.

the fact that her father had died of pulmonary tuberculosis at the age of 46. She had had an operation for fistula-in-ano when she was 23; fibroids and the appendix had been removed at 38, and the tonsils when she was 51. The sight in the right eye had been poor since childhood. She had had a chronic diarrhea for twenty-five years.

When I first saw the patient, pulpy nodules, varying in size from that of a lentil to that of a pea, had begun to appear on her nose. Pathologic examination of one of them showed a few giant cells of the Langhans type but no tubercule bacilli. They continued to develop for about four years.

Fig. 13 (case 3).—Section of tissue just under the epidermis; low power.

Most of them cleared up after thorough curettement, followed by acid cautery. The lesions were classified as tuberculids but could not be definitely placed in any of the recognized subdivisions of this group.

Three years after the onset of the condition, the patient developed a dactylitis in all of the fingers of both hands. The fingers were swollen to about twice their normal size and were tender. The swelling would subside for a few weeks and then would suddenly reappear in a few hours' time. This condition continued for four and one-half years, but had almost disappeared about two months before death. Roentgen-ray examination of the fingers did not reveal any pathologic changes in the bones.

About one year before her death, she called attention to an erythematous area the size of a chicken egg on the right hip, with a soft nodule the size of a pigeon egg in the center of it. There were also from six to eight nodules the size of a pea in the skin adjacent to it. The larger nodule had been growing slowly for about a year. It improved under roentgen-ray therapy but did not disappear. It was finally excised, but recurred and subsequently cleared up under further roentgen-ray therapy. The smaller nodules regressed spontaneously.

A few months later, she developed enlarged inguinal glands, which ulcerated in the next few weeks. They were on the same side as the nodules in the

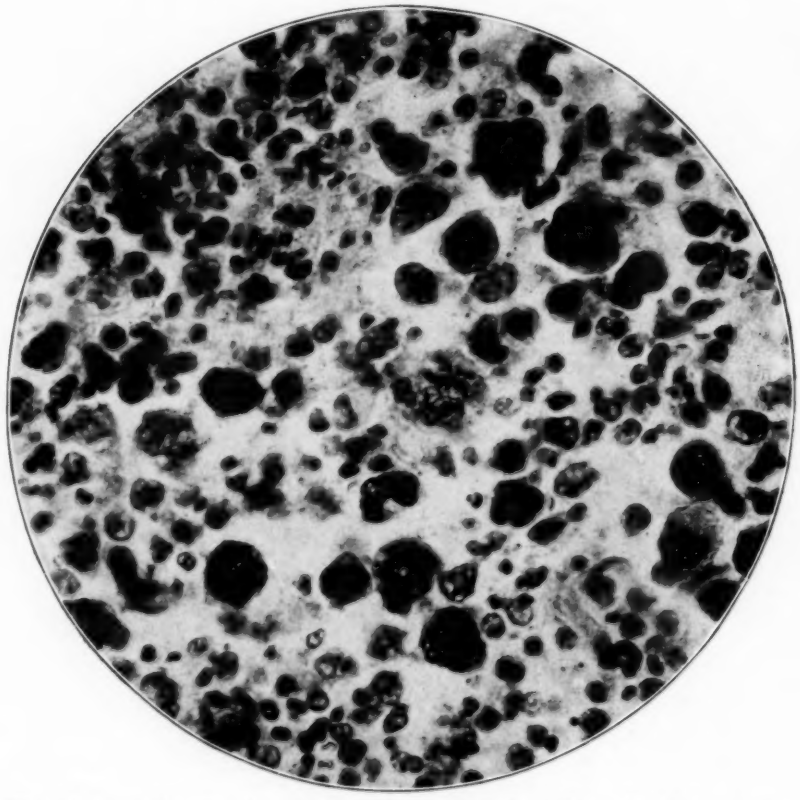

Fig. 14 (case 3).—Section of tissue just under the epidermis; high power.

buttock. All of the other superficial lymph nodes were moderately enlarged at this time. In this condition she was admitted to the University Hospital.

Physical Examination.—The woman was emaciated, and had a painful and foul smelling ulcerated mass the size of an orange in the right groin. Extending down the inner aspect of the right thigh were five brownish colored nodules the size of peas. There was a firm lymph node in the left posterior triangle of the neck, measuring 1 by 2 cm. There were two similar nodes at the left costal margin 1 cm. in diameter. All of the other superficial lymph nodes were hard but were only slightly enlarged. The results of the physical examination were unimportant, except for the symptoms already described; a booming first sound over the aortic area, and roentgen-ray evidence of a healed

pulmonary tuberculosis. Laboratory examination revealed: hemoglobin, 75 per cent; red blood cells, 5,750,000; white blood cells, 10,400; neutrophils, 65 per cent; small lymphocytes, 13 per cent; large lymphocytes, 17 per cent; eosinophils, 3 per cent, and transitionals, 2 per cent. The urine showed a faint trace of albumin. The Wassermann reaction was negative.

The patient died in this condition about one month after admission.

Necropsy.—At necropsy, metastatic nodules were found throughout the lungs, and one nodule about 2 cm. in diameter was found in the heart muscle. Except for the condition of the skin, the superficial lymph nodes reported

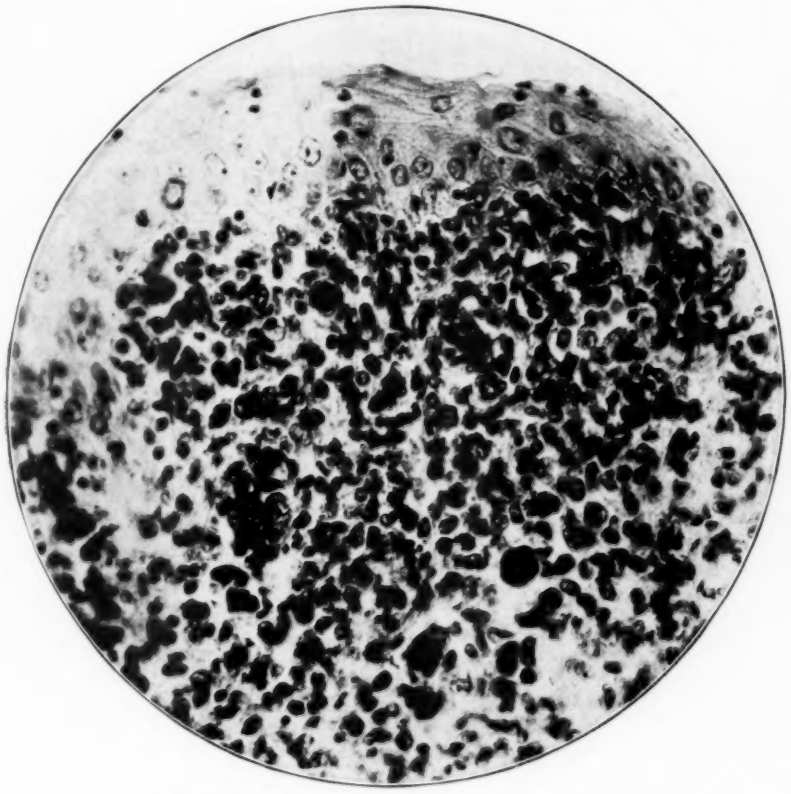

Fig. 15 (case 3).—Section of skin; high power.

clinically and an inactive pulmonary tuberculosis, the organs were essentially normal.

Histologic Examination.—Biopsies were taken from various nodules during life, and sections were made from material taken at necropsy. The skin removed after death differed in histologic manifestations from that during life, in that large numbers of multinuclear cells were present, while formerly they were relatively few.

Examination was made with a low power lens (Spencer Eye-Piece 10, objective 16 mm.) and hematoxylin and eosin stain. The epidermis was thin and consisted of two or three layers of flattened and poorly staining epidermal cells. The rete pegs were entirely obliterated. There was a uniform infiltration

extending from the epidermis to the adipose tissue. It was somewhat more dense near the epidermis, while in deeper parts there were many more multinuclear cells than near the periphery. There were no hair follicles, coil or sebaceous glands present. The blood vessels were not increased in size or in number.

Examination was also made with a high power lens (Spencer Eye-Piece 10, objective 4 mm.). The infiltration consisted mainly of small lymphocytes and of large mononuclear and multinuclear cells. The small lymphocytes predominated throughout the section. In the upper levels there were a few large mononuclear

Fig. 16 (case 3).—Lymph node; high power.

and multinuclear cells, while in the depths of the section there were large numbers of them. The small lymphocytes had a well stained nucleus surrounded by a thin zone of cytoplasm. The large mononuclear cells contained an irregular dark staining nucleus that was at the periphery or near the center of the cell. There was an abundant cytoplasm. The multinucleated cells were much more numerous than the mononuclear ones. They contained from two to twelve nuclei that in most instances took up the entire substance of the cell, while in others they were arranged at the periphery with a clear area of cytoplasm in the center. There was an occasional fibroblast and eosinophil throughout the section. No plasma cells were observed. There were many mitoses throughout the section.

Histologic examination of sections from the lymph nodes, lung and heart muscle showed a similar pathologic picture.

Summary.—The infiltration was a lymphogranuloma. It was either mycosis fungoides, Hodgkin's disease, or lymphosarcoma. The presence of a great abundance of chorioplaques and mitoses favored mycosis fungoides; it was not incompatible with large cell lymphosarcoma, and tended to rule out Hodgkin's disease. The presence of metastases to the heart muscle, lung and lymph nodes, together with the histologic symptoms described, placed the condition in the group of large cell lymphosarcoma.

General Summary.—The patient had a tuberculous infection, as the pulmonary symptoms and fistula-in-ano would indicate. The nodules on the nose and the recurrent dactylitis were classified as tuberculids in want of a better classification. When the nodule first appeared on the hip, mycosis fungoides d'embleé, the chancre of lymphogranulomatosis, as described in the French literature, and sarcoid were considered. The final diagnosis of large cell lymphosarcoma was not made until after an examination of the microscopic changes of the metastatic lymph node and of the lesions of the lungs and heart obtained at necropsy.

CASE 4.—The patient came to autopsy with a clinical and pathologic diagnosis of small cell lymphosarcoma. The dermatologic aspect of the condition was the recurrent bullous eruption on the lower extremities that accompanied it. The case is not reported in detail, as it will be the subject of a later paper.

A pathologic examination was made of fifteen lymph nodes removed at autopsy from various parts of the body. Fourteen showed a constant histologic picture that was diagnosed as small cell lymphosarcoma, while one exhibited the classic signs of lymphogranulomatosis.

GENERAL SUMMARY OF CASES REPORTED

Four patients with unusual dermatologic conditions have been presented. One ran a clinical course of pityriasis rubra (Hebra type) until four months before death, when nodules developed over the body, which were diagnosed after necropsy as lymphogranulomatosis. Another case was considered to be a generalized lymphogranulomatosis of the skin. The infiltration of the skin and the generalized adenopathy were preceded for several months by an intermittent, nonspecific, pruritic eruption. A third patient, whose condition was diagnosed after necropsy as large cell lymphosarcoma, presented a clinical and microscopic picture that was not incompatible with mycosis fungoides d'embleé or chancre de lymphogranulomateux. The fourth patient had a toxic bullous eruption in conjunction with a lymphosarcoma. At autopsy, one of fifteen glands examined revealed the classic picture of Hodgkin's disease, while all others were definitely lymphosarcomatous.

Pityriasis Rubra (Hebra Type) in Association with Lymphogranulomatosis.—The preliminary diagnosis of pityriasis rubra in the first patient was undoubtedly an error, in view of the later development of

infiltrations of the skin and the microscopic changes of the process as revealed after necropsy. It is of interest, however, to note that both pityriasis rubra and lymphogranulomatosis occur most frequently in young males, are of a chronic nature and practically always end fatally; tuberculosis is often considered an etiologic factor in both. Pityriasis rubra is an exfoliating dermatitis that is probably only a symptom of some fatal chronic systemic disease. Lymphogranulomatosis may in some instances be the underlying systemic disease.

Generalized Erythrodema.—Nonspecific generalized erythrodemas are not particularly uncommon in lymphogranulomatosis. A universal, specific granulomatous infiltration as found in the second patient is, however, rare. In this patient, the nonspecific generalized erythroderma preceded the specific infiltration and adenopathy by a period of three

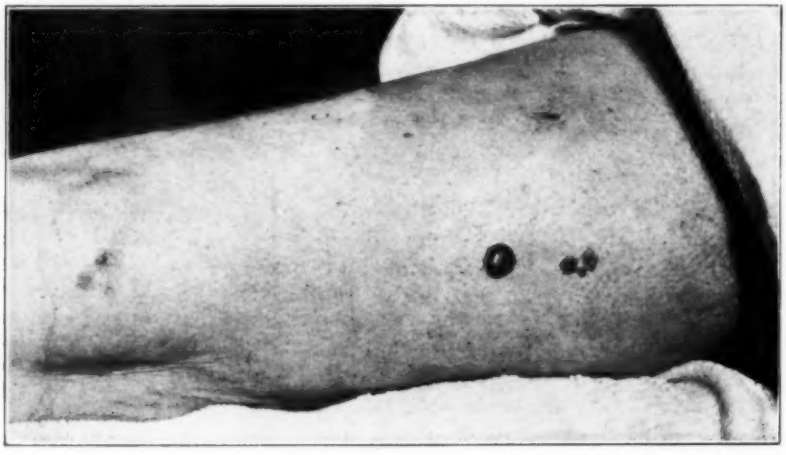

Fig. 17 (case 4).—Bullae in patient with lymphosarcoma.

months, while in the first patient it was present for three and one-half years before the tumors developed in the skin. Similar cases have been reported by Arndt,[34] Doesseker,[35] Breitkopff,[36] Hoffmann,[37] Bacher,[38] Saafeld,[30] Frei,[39] Artz [40] and Haxthausen,[41] who designated them as

34. Arndt: Arch. f. Dermat. u. Syph. **112**:861, 1912.

35. Doesseker: Arch. f. Dermat. u. Syph. **76**:595, 1918.

36. Breitkopff: Zentralbl. f. Hautkr. **2**:424, 1921, cited by Nanta and Chatellier.

37. Hoffmann: Deutsche med. Wchnschr., 1915, no. 38, cited by Nanta and Chatellier.

38. Bacher: Arch. f. Dermat. u. Syph. **85**:31, 1921.

39. Frei: Zentral. f. Hautkr. **2**:423, 1921, cited by Nanta and Chatellier.

40. Artz: Zentralbl. f. Hautkr. **4**:421, 1922, cited by Nanta and Chatellier.

41. Haxthausen: Zentralbl. f. Hautkr. **3**:357, 1922, cited by Nanta and Chatellier.

primary eruptions. While they apparently preceded other signs and symptoms of the disease, beyond a doubt the involvement of the lymph nodes was simply imperceptible or perhaps inaccessible at the time. The diagnosis of lymphogranulomatosis should always be considered in a patient having a generalized erythroderma, even in the absence of any perceptible adenopathy.

"Le Chancre Lymphogranulomateux" and Mycosis d'Embleé.—The third patient, with a definite history of tuberculosis, developed a solitary nodule on the buttock that remained for one year before the appearance of other lesions. Pathologic examination of tissue from the area showed it to be a granuloma, and it was thought to be either lymphogranulomatosis or mycosis fungoides. This initial localization suggested "le chancre lymphogranulomateux" [14] of the French authors, or mycosis

Fig. 18 (case 4).—Bullae in patient with lymphosarcoma.

d'embleé. The occurrence of such initial cutaneous lesions is thought by some authorities to place the disease in the same group as other chronic infections, like syphilis, tuberculosis and sporotrichosis. It has long been recognized that the disease frequently begins in a small localized group of lymph nodes and may remain there for some time before it becomes generalized. Lymphogranulomatous lesions that were apparently primary in the skin have been reported by Artz,[40] Kren,[42] Saafeld,[30] Reinsberg and Kadlicky [31] and Nanta and Chatellier.[14] The similarity of these lesions to mycosis d'embleé is one of the many points of relationship between lymphogranulomatosis and mycosis fungoides. The final diagnosis of large cell lymphosarcoma was made primarily on the distribution and microscopic changes of the metastatic lesions. If it had

42. Kren: Arch. f. Dermat. u. Syph. **130**:549, 1921.

been necessary to make a diagnosis from the cutaneous lesions alone, the condition would have been classified as mycosis fungoides.

Etiology.—In the first patient, the severe generalized and pruritic erythroderma preceded the development of demonstrable adenopathy by a period of two and one-half years. This long continued, chronic irritation due to incessant scratching may have been the cause of the subsequent development of lymphogranulomatosis. It does not seem

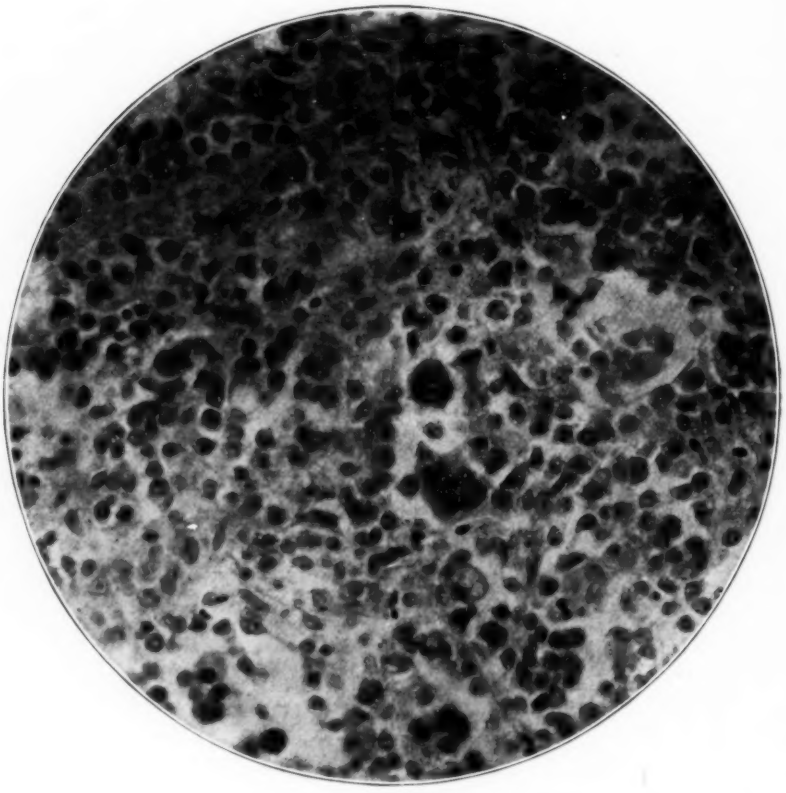

Fig. 19 (case 4).—Lymph node showing lymphogranulomatous structure.

probable that the disease was present from the beginning of the erythroderma and remained imperceptible for a period of two and one-half years. Chronic irritation may be one of the causes of lymphogranulomatosis, as has been demonstrated in the case of certain carcinomas.

Tuberculosis may have played some part in the development of the large celled lymphosarcoma in the third patient.

Relationship of Lymphosarcoma, Leukemia, Mycosis Fungoides and Lymphogranulomatosis.—In the fourth patient, a woman with lymphosarcoma, one lymph node out of fifteen examined at necropsy showed a typical Hodgkin's disease, while all others were definitely lymphosar-

comatous. This demonstrates the possibility of error in making a diagnosis on the pathologic examination of a single lymph node. The same is true in regard to small pieces of skin. A complete autopsy may be necessary definitely to classify diseases in this group.

The last patient may have presented a type of lymphogranulomatosis that developed into lymphosarcoma; the two diseases may have been coexistent, or the symptoms may be common to a disease of the lymph

Fig. 20 (case 4).—Lymph node showing lymphosarcoma.

nodes, whatever way one classifies it. Chiari,[43] Karsner,[44] Yates and Bunting [45] and others believe that lymphogranulomatosis can be transformed into sarcoma. Warthin claims that it can be changed into leukemia.

43. Chiari: Centralbl. f. allg. Path. u. Path. Anat. **22**:8, 1911, cited by Simonds.

44. Karsner, H. T.: Hodgkin's Disease and Certain Allied Conditions, Arch. Int. Med. **6**:175 (Aug.) 1910.

45. Yates, J. L., and Bunting, C. H.: The Rational Treatment of Hodgkin's Disease, J. A. M. A. **64**:1953 (June 12) 1915.

The similarity of the diseases in this group is well recognized, and there is a tendency to combine them into one general group. Since etiology is the basis for classification of disease, it seems best to leave them as separate entities until their origin is known. If a common etiology is found, it will be a simple matter to recombine them and make subclassifications on the present observations of the microscopic changes.

Treatment.—Roentgen-ray therapy is the best treatment for the enlarged lymph nodes in lymphogranulomatosis. The disease may be controlled for several years by its use. For the specific infiltrations of the skin described in this paper, it has not been found of value. Arndt,[20] Doesseker [24] and Hirschfield [46] report similar results.

A patient who has large lymph nodes due to lymphogranulomatosis, and who has remained well for a period of ten years after an attack of erysipelas, has come under my observation. Another patient, almost moribund from the disease, recovered after a severe gangrenous herpes zoster. There is at present a lack of knowledge as to the etiology of this disease; consequently if an attempt is to be made to cure the disease permanently, some profound reaction similar to that caused by these intercurrent infections will have to be produced artificially in the body. With this in view, I am planning to treat patients who have lymphogranulomatosis and mycosis fungoides by giving them a malaria infection as used in treatment for syphilis of the central nervous system.

SUMMARY

Two cases of lymphogranulomatous infiltrations of the skin have been reported. One patient developed cutaneous nodules three and one-half years after the appearance of a generalized erythroderma that was originally considered pityriasis rubra (Hebra type). The second patient had a universal granulomatous infiltration of the skin that was diagnosed after examination of the microscopic changes in sections of the skin and a lymph node.

The observations on a patient with a large cell lymphosarcoma that simulated a mycosis d'embleé or a "chancre de lymphogranulomateux" are presented. A patient with a small cell lymphosarcoma of certain lymph nodes and lymphogranulomatosis of others demonstrates the close relationship between the diseases of this group.

CONCLUSIONS

1. Nonspecific eruptions of the skin are of frequent occurrence in lymphogranulomatosis. In a group of fifty-five patients studied, twenty-two, or 40 per cent, presented eruptions of the skin. The diagnosis of lymphogranulomatosis should always be considered in patients with generalized erythroderma, even in the absence of perceptible adenopathy.

46. Hirschfield: Ztschr. f. Krebsforsch. **16**:105, 1917, cited by Shelmire.

2. True lymphogranulomatous infiltrations of the skin are not often observed. Two patients with cutaneous infiltrations showing a structure similar to that found in the lymph nodes of patients with the disease are presented as being of this type.

3. It is often difficult to differentiate lymphogranulomatosis from mycosis fungoides, leukemia and lymphosarcoma. A complete necropsy may be necessary to classify diseases in this group definitely.

4. Chronic irritation in the form of incessant scratching of an extensive erythroderma may be one of the causes of lymphogranulomatosis.

5. Roentgen ray and all other forms of therapy employed were not of value in the treatment of the specific lymphogranulomatous skin infiltrations. The inoculation of selected patients with malaria or erysipelas is suggested as a form of therapy that may offer some hope of cure in this disease.

ABSTRACT OF DISCUSSION

DR. WALTER J. HIGHMAN, New York: This subject is very interesting to me. Two years ago, I read a paper on this group in which lymphogranulomatosis must be included. I think Dr. Miller has succeeded in clarifying some of the points; not entirely, however, but I suppose that with the present methods of study it is impossible to make the necessary fine differentiations. It is easy to postulate a typical picture of mycosis fungoides, lymphogranulomatosis and lymphosarcomatosis, respectively, but it is difficult to make specimens that come from the various groups conform to pictures we have engendered. I might have found in some of these slides things that would have made me think of mycosis fungoides rather than lymphogranulomatosis. As far as the lymphogranulomatosis of Brocq is concerned, I think Brocq himself pointed out the difficulty of differentiating this from lymphosarcoma. One or two cases that were clinically lymphogranulomatosis were found at autopsy to be lymphosarcoma.

I think that a clean-cut presentation of the subject matter has been given. Nevertheless, the inherent difficulties of diagnosis in these conditions is great. It includes the study of the clinical and laboratory material, and the latter still confronts one with the need for better methods of study, finer methods of staining, and much finer minutae in methods of approach than are even dreamed of today. As far as his work goes, and it goes very far, I think that Dr. Miller has presented an admirable piece of work.

DR. UDO J. WILE, Ann Arbor, Mich.: It has been my fortune to have had a great many patients such as Dr. Miller has described under my care most of the time. There is seldom any time when there are not two or three patients in the hospital waiting to die of a condition that starts as exfoliative dermatitis. From time to time there are glandular enlargements and changes in the blood. These lead first to the diagnosis of leukemic dermatitis; the condition goes on, and then after a time the pathologist says, when the patients die, that it was lymphosarcomatosis, or Hodgkin's disease. A similar case was presented by Dr. Keim about two years ago at a session of the American Medical Association, in which he pointed out the desirability of designating this whole group as lymphoblastomas rather than lymphogranulomas, including all of the cases essentially involving the lymphatic or lymphogenous structures,

but presenting more or less different clinical pictures. It used to be accepted that mycosis fungoides was a condition that could be definitely diagnosed under the microscope. I think Dr. Miller has shown, as others have, that this is not true. Mycosis fungoides is a useful clinical term and should be retained to differentiate tumors that tend to fungate. I think that a name which tends to throw some light on this syndrome is valuable.

There is one point that I would like to emphasize further. It seemed to me, in cases I have had the opportunity to study, that it is as rational to assume that the cases are lymphoblastomas from the start rather than secondary insults from scratching or irritation. It appears to me that it is easier to believe that these patients have some profound disturbance in their lymphogenous system which results in itching, later in thickening, and still later in involvements of the blood, and finally in death.

Dr. Paul A. O'Leary, Rochester, Minn.: The confusion regarding the lymphogranulomatoses is not confined solely to the dermatologists but is to be observed in the reports of the general pathologists also. In a recent review of 460 cases of Hodgkin's disease and lymphosarcoma, I found seventy-three that the pathologists classified as lymphosarcoma of the Hodgkin's type. The pathologic report indicates that there may be a transitional phase in which it is impossible to classify the disease definitely, but that subsequent pathologic study of new tissue obtained at biopsy may permit a definite pathologic diagnosis.

In this series of 460 patients, practically 30 per cent had been seen in the department of dermatology with dermatoses that were related to the systemic disease. An additional 12 per cent presented lesions of the skin that were not directly associated with the glandular disease. The outstanding dermatologic picture was that of a general toxic pruritus. This study also emphasized the value of roentgen-ray examination of the chests of patients complaining of a generalized itching in order to determine whether mediastinal glandular enlargement was present. This is a point that I know needs no mention to dermatologists, but it is frequently overlooked by internists. I have made it a routine procedure to examine with the roentgen ray the chests of patients who present a generalized pruritus.

The use of malaria therapy has been disappointing in one patient with mycosis fungoides. The pruritus disappeared during the course of the fever, but returned shortly after the chills were stopped. The response to roentgen-ray therapy following the course of the fever has been more striking than usual.

Dr. Fred. D. Weidman, Philadelphia: Dr. Miller has added reports of several cases to the short list in which typical lesions of the skin have been observed, including Reed's giant cells in sections. I think Dr. Howard Fox was the first to report a pure case of this type.

I wish to correct a false impression that I may have created in discussing the giant cell. I wished to bring out the fact that it is dangerous to attempt to diagnose a section on the basis of giant cells alone. The associated features must be depended on for the diagnosis. I might add that the general pathologists have recently arranged a round robin and that a committee has been appointed with headquarters at the Army Medical Museum at Washington for the accumulation of reports of cases of lymphadenosis. There was no unanimity of opinion at the recent meeting in Rochester of the American Society of Pathology and Bacteriology; some of the members believed that the condition was neoplastic and others, that it was granulomatous. The prospect of determining the true pathogenesis of this condition is not bright; therefore I

do not believe that it will be accomplished until more is learned about the cause of malignant disease in general. When one can distinguish between the neoplastic and the granulomatous factors in etiology, one will have reached the proper conclusion in regard to the cause of granuloma fungoides.

Dr. Howard Fox, New York: Dr. Miller called attention to the case I reported six years ago and mentioned the rarity with which the lymphogranulomatous tumors are found in the skin. My patient had a few tumors on the scalp and back in addition to the enlargement of the lymphatic glands. In the diagnosis, mycosis fungoides of the d'embleé type and lymphatic leukemia had to be excluded. As to the relationship of this disease to tuberculosis, I would say that in my case tuberculosis was excluded as far as it was possible to do so.

Dr. Miller: I agree with Dr. Wile that most of these patients with associated pruritic skin eruptions have lymphoblastoma from the start. I simply suggested that in the one case in which the itching had been present for three and a half years before the tumors developed, the constant irritation may have been productive of the disease.

EPILATION WITH THALLIUM ACETATE IN THE TREATMENT OF RINGWORM OF THE SCALP IN CHILDREN *

BOTHO F. FELDEN, M.D.
NEW YORK

The tenacity of *Tinea tonsurans* of the scalp in children at asylums and hospital wards due to the intimate character of contact among them furnishes difficult problems to the general practitioner as well as to the dermatologist. While in charge of the skin wards at the New York City Children's Hospital for mental defectives at Randall's Island, New York, I learned that these problems are still greater at institutions for the feebleminded, where frequent recurrences and reinfections from uncured or newly admitted patients decidedly interfere with the complete eradication of the disease. Mentally low grade children, idiots or imbeciles, have the habit of tearing caps and bandages off their heads and smearing ointments mixed with morbiferous products over their own and other children's faces, hands, clothing and furniture, some of them even eating and licking the salve, so that in spite of strict supervision conveyance of infectious material cannot be avoided. Since medical treatments with local applications of various ointments and disinfectants, including the lately advised use of pyrogallic acid, 10 per cent, in petrolatum by Buschke and Klemm, as well as Soboleff's use of mercuric iodide and Oppenheim's use of 10 per cent antimony and potassium tartrate, do not reach their goal without epilation and therefore have not been proved entirely satisfactory, roentgen-ray epilation had to be resorted to, in order to remove entirely the fungus bearing hairs all at once. The time required to expose psychopathic and mentally defective children to the roentgen ray and the dangers herewith connected because of their restlessness and the necessary exposure to attendants who hold them are considerable disadvantages of this method. Many of the patients had to be etherized, and the anesthesia had to be continued during pauses in the exposure; so that, including all the necessary delay, only from four to five children could be treated during one forenoon.

The use of thallium acetate, an effective drug with elective specific action to produce alopecia, means a great progress in the resources for combatting mycotic diseases of the hair of children.

---

* From the Department of Dermatology and Syphilology of the New York Postgraduate Medical School and Hospital and the Skin Ward of the New York City Children's Hospital, Randall's Island, New York.

* Read at the German Medical Society, New York, December, 1927.

Through a long series of painstaking and accurate laboratory and animal experimentations, extending over a period of more than a quarter of a century, Buschke deserves the credit for having created the biologic basis for the practical tests and for the clinical use of the thallium.

As early as 1897, Sabouraud was the first one to have used thallium therapeutically to produce alopecia; his use of it was instigated by the observation of a patient who suddenly lost the major part of her hair two weeks after taking pills prescribed against dysenteric symptoms. Investigation by the druggist of the bath resort Dinard in France revealed that four of these pills contained 0.32 Gm. of thallium acetate; after six weeks, the hair was restored completely. Sabouraud gave 5 mg. per kilogram internally in other patients, but had irregular and incomplete results; in combination with a 10 per cent thallium ointment, he saw toxic symptoms which caused him to abandon this method, and he later returned to the epilation with the roentgen ray.

Buschke became interested through the report of Giovannini of the occurrence of alopecia in two female patients, aged 19 and 32 years, respectively, who had tuberculosis and who had taken 0.1 Gm. of thallium acetate to decrease their nocturnal sweats; in 1900 he reported experiments on rabbits, guinea-pigs and mice. Many of these animals died, because the dosage first used was too large; when 20 mg. of thallium acetate was dissolved in 1,000 cc. of water, and 20 cc. of this solution given in the trough, mixed with the food, alopecia could be produced in fourteen days, while the animals usually died after eighteen days with the symptoms of enteritis and increasing stupor. In the following year Buschke, having continued his experiments, read a paper in the German Dermatological Society in which he stated that alopecia could be produced regularly in mice after they were fed for two or three days at repeated intervals with pieces of bread soaked in a 1 : 1,000 watery solution of thallium. Regeneration took place in from six to eight weeks, if the animals stayed alive. Microscopic changes could not be found on the hair and skin. Local salves applied to erosions and injections were without effect.

In summarizing Buschke's later reports which resulted from the continuation of his animal experiments together with Peiser, Klopstock and Langer, it is worthy to note the inhibition in the development and the metamorphosis of the tadpole; the inhibition in the growth of rats; the production of partially local and partially general alopecia in rats, mice, guinea-pigs, monkeys and rabbits; the production of cataract, atrophy of the testicles and decreased sexual activities and changes in the bones in rats, which are similar to rickets.

The action of the thallium is supposedly due to a disturbance in the endocrine-sympathetic system. The alopecia is explained not by a direct effect of the hair papilla, such as is caused by the roentgen rays, but by

way of the sympathetic nervous fibers influencing the nutrition of the hair. In connection with this hypothesis, it is interesting that in animals and man only the hair supplied by the sympathicus comes out, and that the so-called "Sinneshaare" in animals and a small border on the forehead and the median parts of the eyebrows and the eyelashes in man, not subject to the influence of the sympathicus but inervated by the central nervous system, remain. I can confirm this observation in some of my own cases, but I also found in the majority a complete epilation of the scalp, never of the eyebrows and lashes. Selective action of a drug on any nerve system does not belong exclusively in pharmacology to thallium, but epinephrine, nicotine and curare, as is known, act to a certain extent selectively.

In man, the local use of thallium acetate in salve to produce epilation was again suggested by Sainz de Aja and Zuloaga, who saw good epilation and one case of generalized intoxication from twenty to twenty-five days after local massaging with the salve. Buschke and Peiser advised against the local use of thallium in salve as a means to produce epilation in man because of the inaccurate and undeterminable degree of absorption and the danger of general intoxication. Although they admit the possibility of causing local falling out of hair, supposedly due to the direct action of the medicament on the end fibers and branches of the sympathetic system of the follicles, they warn against this mode of application. In a patient with sycosis parasitaria, 3 Gm. of 1 per thousand thallium in petrolatum was applied on three consecutive days to produce local alopecia; this succeeded, but in addition almost the whole hair of the scalp came out within the next three weeks, to regrow completely only in six months. Another patient with trichophytia was treated with iontophoresis with a 1 per thousand thallium acetate solution; local epilation of hair did not result but a slight alopecia of the hairy scalp took place. In the same year (1922), attempts had already been made to combine thallium and the roentgen ray in animals with fractional dosage of each, but without good results, in contradistinction to the more favorable recent results in man.

Thallium acetate was used first by Cicero and Peter (in Mexico), then by Fellugo and Fiocco (in Italy), Buschke and Langer (Berlin), Stern and Grevel (Düsseldorf), Ritter (Hamburg), Stümpke (Hannover), Arzt (Vienna), Kleinman and Bornstein, Dostrowsky, Dixon (in England) and others. These authors administered the drug internally in man by mouth in one single dose of 0.008 Gm. per kilogram of body weight; in smaller children also in dosages of 5 and 6 mg., and in isolated cases as high as 9 mg. (Heuck, Munich).

All of these authors recognize the efficacy and high clinical value of the thallium method to produce epilation in children, although some warning voices are heard and several intoxications are reported.

The peculiar fact is noted that the thallium cannot be used in the same dosage after the development of puberty without greater danger than in children, because of its marked toxicity, which probably is due to the changed function of the endocrine-sympathetic system after maturity of the sexual glands. Spitzer was able to confirm this observation in animal experiments by finding that the lethal and epilatory doses are much further apart in young than in matured rats.

The intoxications known to occur in man manifest themselves by neuralgic pains in the muscles and joints, choreatic convulsions (Peter), albuminuria, gastro-intestinal disturbances, achlorhydria, secondary anemia with lymphocytosis and eosinophilia, tachycardia, and in one case a skin eruption, clinically resembling lichen planus.

I shall report briefly my results in forty-seven cases of trichophyton infection of the scalp in children at the New York City Children's Hospital. All these children had various degrees of feeblemindedness. They consisted of morons, imbeciles and idiots, between the ages of 2 and 19 years; forty-five of them were between 2 and 13; ten girls and thirty-seven boys were in the group studied. In all the children, the urine was examined before medication and was found normal. Body weight was accurately taken, and 8 mg. of the drug per kilogram of weight was given; it was dissolved in half a glass of sugar water, and was taken on an empty stomach in the morning. The lowest dosage was 0.091 Gm. in a boy, aged 2 years, the highest, 0.29 Gm. in a girl, aged 13 years.

Two of the children included in this series were exceptions as to the age limit for the administration of thallium; one was a girl, aged 15, with rachitic deformities of the bones and decided nanism; physically, she was entirely infantile, not showing any signs of approaching puberty and had attained the size of a child of only 3, weighing 35 pounds (3.9 Kg.). The other child, a boy, also was infantile; he was a cretin, aged 19 years, with the height of a boy aged 5 or 6, and weighed 29.3 Kg.

These two patients showed only slight epilatory effect, which was insufficient to remove all the infected hairs. This was undoubtedly due to the marked disproportion between age and body weight. It is plausible that the great deviation between weight and age as well as the disturbances in the endocrine system are responsible for these failures; the development of the endocrine organs possibly is parallel to the age and not to the body weight, and if so, the dosage made according to body weight does not correspond to the size of the endocrine organs (Buschke-Langer).

After the epilation, the hair commences to regrow in from three to four weeks, in a few instances as early as one week, and seldom as late as after two months. In the very beginning, the new hair had a downy appearance; later, it was strong and bristly. During the whole procedure, I continued the local treatment of the scalp and consider the possibility

of doing this without causing irritation as one of the great advantages of the thallium in comparison with the roentgen-ray method. Irritation of the skin was never observed; in a few instances slight folliculitis and harshness and dryness were present, but these disappeared after a few weeks.

Of the forty-seven patients treated with thallium, thirty-six were cured after one thallium medication. The whole observation from the date of the thallium intake extended over a period of from four to five months. Particular care was taken to continue the quarantine after the regrowth of hair for at least six or eight weeks. In two cases the hair did not come out until a repetition of the thallium dosage two months after the first dosage, when the effect was excellent, which makes it probable that through some mistake the full amount of the drug was not ingested the first time. In two instances of formation of kerion celsi, the short hair stumps did not come out and the ringworm recurred. The patients with infantile development already described were not cured. In one of them, a combined thallium and roentgen-ray treatment, two thirds of the epilating dosage of each, has been undertaken, with apparently good results. This experiment has not as yet been concluded.

Toxic symptoms were noted in only one case, which resulted in complete restoration. This occurred in a girl, aged 13 years, who had never menstruated, though she was approaching puberty, as shown in the beginning development of her breasts. I could have avoided this occurrence by stricter adherence to the rule never to use thallium except in children before puberty.

A few of the case histories will illustrate this report:

REPORT OF CASES

CASE 1.—*History.*—William M., a colored moron, aged 12, weighing 70 pounds (31.8 Kg.) and 4 feet 2 inches (127 cm.) tall, was admitted to the hospital, Feb. 14, 1927. His scalp showed several nummular and oval distinctly outlined patches of a dusty appearance, varying in size from that of a quarter to that of a dollar, with broken off short hairs covered with grayish scales; a few tiny pustular lesions in the hair follicles were visible.

The condition was diagnosed as tinea microsporica (fungus positive).

Treatment.—The scalp was washed daily with soap and water; 5 per cent tincture of iodine was applied, and on alternate days 5 per cent ointment of ammoniated mercury.

On Feb. 23, 1927, a roentgen-ray treatment was given to the scalp. A sparkgap of 6 inches was used; six milliamperes was the dosage applied with an 8 inch focus skin distance, and a filter was not used. The child was given one and one-fourth minutes' exposure in five positions. The local treatment was continued.

On April 3, roentgen-ray treatment of the scalp did not show any marked epilatory effect. The condition of the scalp was slightly improved. The local treatment was continued.

On May 13, thallium acetate, 0.29 Gm., was given internally.

On May 16, the urine did not show any albumin or casts.

On May 21, the hair started to loosen and to come out.

On June 1, the thallium had not caused any untoward effects. The center of the scalp and the sides were fairly well denuded of hair; the lateral parts of the eyebrows did not show any epilation. The ringworm lesions had cleared up, and only a few isolated pustules were noticeable. The local treatment consisted of daily washing with soap and water and painting with 2 per cent salicylic acid and

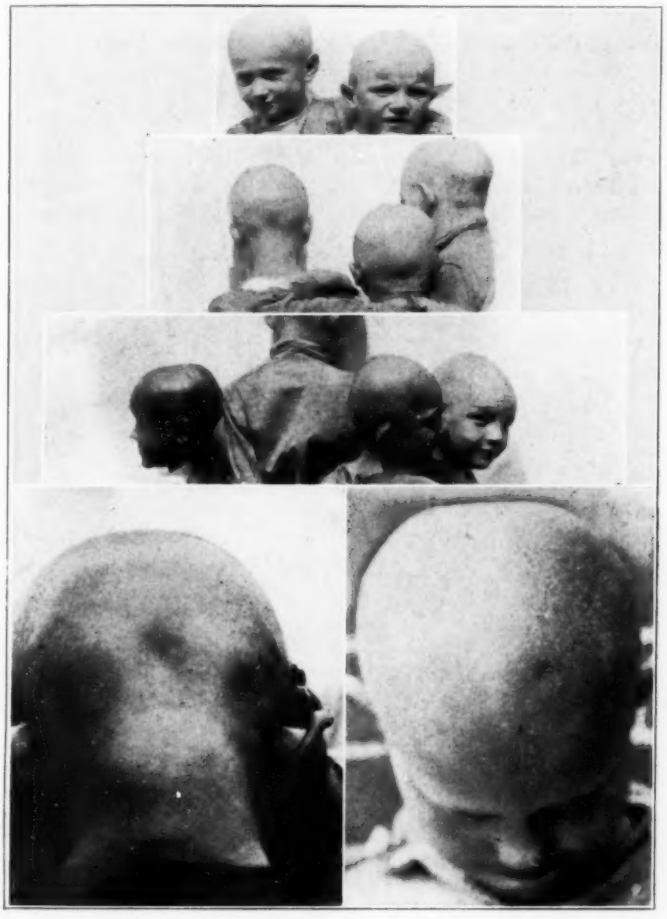

Fig. 1.—Heads showing complete epilation eighteen days after thallium intake.

20 per cent tincture of iodine alcohol solution. On alternate days, 5 per cent ointment of ammoniated mercury was applied.

On June 3, the scalp was almost entirely bald, and the hair was coming out nicely.

On June 28, the scalp was entirely clean. All the lesions were healed, and the hair had started to grow again.

On July 10, the hair had regrown further; a stronger growth was noticed on the areas previously affected. The scalp was washed daily with soap and water, and 10 per cent sulphur ointment applied.

On July 30, the scalp continued to be without recurrence and was entirely clean.

On August 10, no lesions of any kind were present. The tinea microsporica was cured. The patient was discharged from the ward for patients with diseases of the skin.

CASE 2.—*History.*—Irving G., a white idiot, aged 5, weighing 30 pounds (13.6 Kg.) and 3 feet (91.4 cm.) tall, was admitted to the ward for patients with diseases of the skin on June 22, 1927. Examination revealed two fairly well defined patches the size of a half dollar, which showed broken off short hairs about 2 or 3 mm. above the level of the scalp, partly covered with fine grayish scales (fungus positive).

The condition was diagnosed as trichophytosis of the scalp.

Treatment.—The affected spots of the scalp were painted with 5 per cent tincture of iodine, and a 2 per cent resorcin—salicylic acid, 10 per cent sulphur ointment applied. On alternate days the scalp was treated with 5 per

Fig. 2.—*A*, scalp showing beginning regrowth of fine hair three weeks after complete epilation; *B*, normal regrowth of healthy hair.

cent ointment of ammoniated mercury. The scalp was washed daily with soap and water.

On Aug. 8, 1927, the patient received 0.113 Gm. of thallium acetate internally on an empty stomach. The weight at that time was 14.1 Kg.

On August 28, there was good complete epilation; the whole scalp was entirely bald, and no lesions of any kind could be noticed. The local treatment was continued; it consisted of painting the scalp with 5 per cent tincture of iodine and application of 10 per cent sulphur ointment.

On September 25, the skin was entirely clean; no lesions were noticeable.

On October 3, fine downy hair began to regrow.

On October 21, signs of ringworm on this patient's scalp had not been noticed for the last two months and any untoward effects of the thallium were not noticed. There was further regrowth of fine hair, almost to the normal thickness. The trichophytosis of the scalp was cured.

The patient was discharged.

CASE 3.—*History.*—Abraham F., a white imbecile, aged 2, with microcephalic amaurosis and congenital cataract, weighed 30 pounds (13.6 Kg.) and was 2 feet 6 inches (76.2 cm.) tall. He was helpless, being unable to walk or stand and needed an infant's care. The right side of the scalp showed several areas the size of a penny with short, broken off hairs partly covered with grayish-yellowish scales and crusts, showing a few follicular pustules.

The condition was diagnosed as trichophytosis of the scalp.

Local Treatment.—Ten per cent ointment of ammoniated mercury was applied daily, and the scalp was washed daily with soap and water.

On Aug. 8, 1927, the child received 0.091 Gm. of thallium acetate dissolved in sugar water given internally on an empty stomach. His weight was 11.4 Kg.

On August 29, a fairly good epilatory effect was noticeable. The remaining hairs were pulled out with adhesive strips easily and painlessly, with the excep-

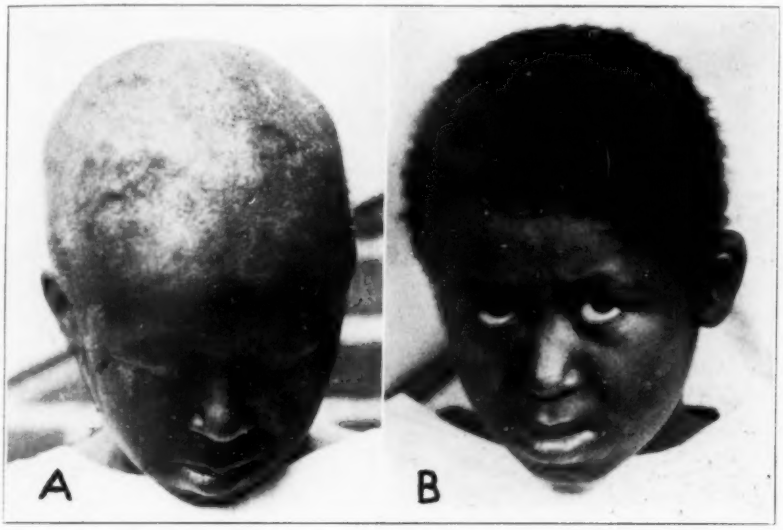

Fig. 3.—*A*, appearance of patient with tinea microsporica, showing thallium epilation eighteen days after intake; *B*, complete regrowth of strong, healthy hair.

tion of those on the border of the forehead and the sides of the scalp above the ears. No lesions or pustules were visible.

On October 11, there was a regular and even regrowth of hair. The scalp had been entirely clean for the past six weeks. The trichophytosis of the scalp was cured.

The patient was discharged from the ward for patients with ringworm.

CASE 4.—*History.*—Victor T., a colored imbecile, aged 4, weighing 35 pounds (15.9 Kg.) and 3 feet 4 inches (101.6 cm.) tall, was admitted to the skin ward, March 30, 1927.

On the scalp were several nummular areas varying in size from that of a quarter to that of a half dollar with broken off hairs, grayish scales and tiny pustular lesions visible.

The condition was diagnosed as tinea trichophytica of the scalp.

Treatment.—The scalp was washed daily with soap and water; the lesions were painted with 5 per cent tincture of iodine on alternate days, and 5 per cent ointment of ammoniated mercury was applied on the days between.

On May 14, 1927, the patient received 0.17 Gm. of thallium acetate internally.

On May 18, the urine did not show albumin and casts.

On May 22, the hairs were beginning to loosen.

On June 1, the scalp was almost entirely bald on the center and occiput. The skin lesions were decidedly improved, but a few isolated tiny pustules could still be noted and not all the broken off short hairs had entirely come out.

On June 3, the scalp was almost entirely bald. Skin lesions were not present.

On July 7, the areas previously affected again showed scales, pustules and short, broken off hairs 2 or 3 mm. above the level of the scalp. The hair of the other parts of the scalp showed rapid regrowth. There was a recurrence of the trichophytosis. The patient received 0.16 Gm. of thallium acetate internally on an empty stomach. At this time the body weight was 20 Kg.

On August 29, there was a complete epilation of the entire scalp; ringworm lesions or pustules were not noticeable. Local treatment consisted of daily painting of the scalp with 5 per cent tincture of iodine and application of 10 per cent sulphur ointment.

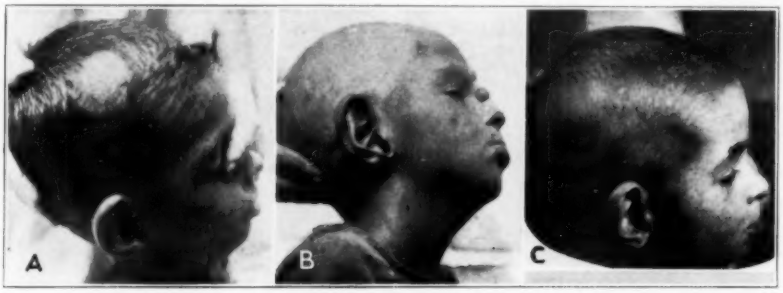

Fig. 4.—*A*, appearance of patient with kerion celsi; *B*, thallium epilation nineteen days after intake; *C*, regrowth of healthy hair.

On October 26, there was a regular even regrowth of hair over the entire scalp. No lesions of any kind were noticed. The trichophytosis was cured.

The patient was discharged from the ward for patients with diseases of the skin.

Case 5.—*History.*—Sylvia L., a white moron, aged 13, had trichophytosis of the scalp. Previously she had received two roentgen-ray treatments but was not cured. The scalp still showed scattered areas of broken off hairs and fine scales (fungus positive). The diagnosis of trichophytosis of the scalp was verified.

On May 14, 1927, thallium acetate, 0.29 Gm., was given internally. The body weight was 31.8 Kg.

On May 20, the hair of the entire scalp became loose and could be pulled out fairly easily and painlessly.

On May 28, almost complete epilation had taken place.

On June 2, the patient complained of pains in her feet and legs and was listless and bedridden. The blood count showed: 3,800,000 red cells; slight poikilocytosis; leukocytes, 10,200; polymorphonuclears, 42 per cent; small lymphocytes, large lymphocytes and large mononuclears together, 54 per cent; eosinophils, 4 per cent; hemoglobin, 70 per cent. The urine did not show albumin or casts.

On June 6, the patient complained of marked pain in the legs and feet and also of discomfort in the region of the stomach. The temperature was 100; pulse rate, 88; respiration, 28; the pupils were not enlarged. Ptyalism was not present. Cough and a few rhonchi over both sides were noticed.

Five grains (0.32 Gm.) of acetylsalicylic acid, three times daily, and 10 drops of diluted hydrochloric acid before meals, three times daily, were ordered.

On June 8, the temperature was 100.4; pulse rate, 122, and respiration, 26. The cough was not improved; the patient was restless.

On June 9, the temperature was 104; pulse rate, 114, and respiration, 26. There was severe pain in the stomach, and the cough was not improved. In the right side of the chest posteriorly, percussion was impaired, and harsh bronchial breathing was present. The pupils were normal. One-fourth grain (0.016 Gm.) of codeine and 8 drops of tincture of digitalis were given three times a day.

On June 13, the general condition was improved; the temperature had averaged 99.6 the last three days. The pulse rate was 100. The pains were less noticeable, but considerable cough was still present and sibilant rhonchi, particularly posteriorly in the region of the right lower angle of the scapula, were audible.

On June 18, the temperature had been normal for the last three days; the patient had no further complaints and was out of bed. All medication was discontinued; there was beginning regrowth of hair.

On July 5, there was further regrowth of hair. An occasional follicular pustule was noticeable. The patient was in good physical condition.

On August 1, the scalp looked clean; no lesions of any kind were present. The hair had regrown almost completely.

On August 17, the scalp was entirely clean, with complete regrowth of hair. The trichophytosis was cured.

The patient was discharged from the ward for patients with diseases of the skin.

Whether the bronchopneumonia was the consequence of the thallium or an accidental accompanying complication in this case, I cannot determine. There is no reference to a similar occurrence in the literature.

SUMMARY

A report of forty-seven children with trichophytosis of the scalp is given, with thirty-six cures after one administraion of thallium acetate by mouth, 0.008 Gm. per kilogram of body weight being given.

Epilation usually appears on the eighteenth day, is only entirely spontaneous in approximately 50 per cent of the cases and has to be completed by the extraction of loose hairs with adhesive strips, which is entirely painless. The epilation is not entirely dependable, since there will be cases in which only partial results are obtained.

Local treatment, which consists of painting the scalp with 5 per cent tincture of iodine and applying a 10 per cent sulphur ointment daily, should be continued throughout the entire period. Particular attention should be paid to the remaining short, broken off hairs.

Patients with a marked discrepancy between weight and age are unfit for pure thallium treatment; the combined method, consisting of one half or two thirds of the dosage of both the roentgen ray and thallium, offers eventually a good outlook.

Thallium is strictly to be avoided in full dosage in adults and in children approaching puberty, because of its serious toxicity.

Repetition of the thallium intake in less than two months is dangerous and is to be avoided.

The thallium should be taken on an empty stomach and should be dissolved in sugar water in the presence of the physician, who must assure himself that undissolved salt does not remain in the glass.

Acute infections, which are generally debilitating, and diseases of the kidneys are contraindications to the thallium medication.

CONCLUSIONS

Thallium acetate is a valuable drug in producing epilation in children.

The indiscriminate use of thallium by those not thoroughly familiar with its indications, contraindications and its grave toxic qualities is warned against emphatically.

BIBLIOGRAPHY

Von Berde-Szeged, K.: Thallium in Dermatology, reference in Dermat. Wchnschr. **84**:813, 1927.

Arzt: Wien. Dermat. Gesellsch., January, 1927; reference in Dermat. Wchnschr. **84**:834, 1927.

Buschke: Experimenteller Beitrag zur Kenntnis der Alopecie, Berl. klin. Wchnschr., 1900, no. 53, p. 1235.

Verhandl. d. deutsch. dermatol. Gesellsch., 1901, p. 128.

Buschke and Peiser: Ueber die Endokrine Wirkung und die praktische, Bewertung des thalliums, Dermat. Wchnschr., 1922, no. 19, p. 443.

Experimentelle Beobachtungen über Beeinflussung des endokrinen System durch thallium, Med. Klin. **18**:731, 1922.

Die Wirkung des thalliums auf das endokrine system, Klin. Wchnschr. **1**:995, 1922.

Berl. Dermat. Gesellsch., May, 1922; reference in Dermat. Wchnschr. **75**:690, 1922.

Versammlung Deutscher Naturforscher und Arzte, Leipzig, September, 1922; reference in Dermat. Wchnschr. **75**:1181, 1922.

Buschke and Jacobsohn: Untersuchungen über thalliumwirkung, Deutsche med. Wchnschr. **48**:859, 1922.

Buschke and Peiser: Schleimhaut und Knochenveränderungen bei Ratten durch experimentelle Thalliumwirkung, 13 Congress d. Deutsch. Dermatol. Gesellsch., May, 1923; reference in Dermat. Wchnschr. **77**:929, 1923.

Buschke, Langer and Peiser: Dermat. Wchnschr. **83**:971, 1926.

Buschke, Langer and Schayer: München. med. Wchnschr. **20**:815, 1926.

Buschke, Peiser and Klopstock: Deutsche med. Wchnschr. **52**:1550, 1926.

Buschke: Berl. Dermat. Gesellsch., November, 1926; reference in Dermat. Wchnschr. **84**:149, 1927.

Buschke and Langer: Dermat. Wchnschr. **84**:732, 1927.

Die Kombinierte Thallium-Röntgenepilation, Dermat. Wchnschr. **85**:1390, 1927.

Bogdanow: Acta dermato venerologica Rossica, October, 1926.

Bornstein: Dermat. Wchnschr. **84**:173, 1927.

Cicero, Ricardo: Tratamiento de las tiñas por el acetato de talio, Rev. de Puebla, 1919, no. 8; reference in Peter: Arch. f. Dermat. u. Syph., vol. 150, p. 438.

Secundo congreso sudamericano de dermatologia y sifiligraphia de Montevideo, October, 1921.

Divella: Gior. ital. di dermat. e sifil., 67; reference in Centralbl. f. Haut u. Geschl., vol. 21, p. 449.

Dixon, W. E.: Proc. Roy. Soc. Med., June, 1927, vol. 20, no. 8; reference in Dermat. Wchnschr. **85**:1332, 1927.

Dombrowski, A.: Lichen ruber planus im Anschluss an Thalliumbehandlung, Dermat. Wchnschr. **84**:542, 1927.

Dostrowsky, A.: Zur Thallium Behandlung der Haarpilzerkrankungen der Kinder, Dermat. Wchnschr. **84**:729, 1927.

Dowling, B.: Ringworm of Scalp Treated with Thallium-Acetate-Epilation, Proc. Roy. Soc. Med., section of Dermatology, May, 1927, vol. 20, no. 7.

Felugo, Ciaro: Rinascenza Medica, 1925; reference in Centralbl. Haut u. Gesschl., 1926, vol. 19, numbers 3 and 4.

Fiocco: Gior. ital. di dermat. e sifil., 1925; reference in Centralbl. Haut u. Geschl. **18**:80, 1925.

Heuck: Reference in Centralbl. Haut u. Geschl., vol. 21, numbers 9 and 10, p. 558.

Kleinmann: Med. Klin., 1926, no. 46.

Dermat. Wchnschr. **84**:493, 1927.

Thalliumwirkung und Blutkörperchensenkungsgeschwindigkeit, Dermat. Ztschr. **50**:435, 1927.

Linser: Thalliumalopecia, 15 Congress d. Deutsch. Dermatol. Gesellsch.

Lourier, A., and Zwitkis, E.: Dermat. Wchnschr. **85**:1518, 1927.

Bonn: September, 1927; reference in Dermat. Wchnschr. **85**:1495, 1927.

Pasini: Dermat. Wchnschr., 1926, p. 1683.

Peter: Arch. f. Dermat. u. Syph., vol. 150, p. 438.

Ritter: Dermat. Gesellsch., February, 1927; reference in Dermat. Wchnschr. **85**:955, 1927.

Sabouraud: Entretiens dermatologiques, Paris, 1924, vol. 2.

Spitzer, Rudolf: Thalliumsalze und Haarwachstum, Deutsche med. Wchnschr., 1922, no. 18.

Spitzer: Experimentelle Beiträge zur Kenntnis der Thallium Alopecie, Arch. f. Dermat. u. Syph., 1922, vol. 140, no. 3, p. 429.

Stein: Wien. Dermat. Gesellsch., November, 1926; reference in Dermat. Wchnschr. **84**:276, 1927.

Stern, C., and Grevel, P.: Ueber Erfahrungen mit der Epilation des Thallium aceticum, Dermat. Wchnschr. **85**:1021, 1927.

Stümpke: Thallium Acetate Epilation Bezüglich ihrer Kombination mit Röntgenstrahlen, Dermat. Wchnschr. **85**:1055, 1927.

Stümpke: Dermat. Wchnschr. **85**:1393, 1927.

Urueña y Ochoterena: Las tiñas en Mexico su tratamiento con el acetato de Talio, Boletin de la Universidad Nacional de Mexico, 1922.

Zurhelle: Dermat. Ztschr., 1927, vol. 50.

216 West Eighty-Ninth Street.

FUNGI AND FUNGOUS DISEASES

LECTURE III *

ALDO CASTELLANI, C.M.G., M.D.
Fellow of the Royal College of Physicians, London; Professor of Tropical Medicine, Tulane University, New Orleans; Visiting Lecturer, London School of Hygiene and Tropical Medicine and University of Porto Rico; Director of Tropical Medicine, Ross Institute, London; Emeritus Professor of Tropical Medicine, Ceylon Medical School

NEW ORLEANS

SKIN DISEASES DUE TO FUNGI

External Mycoses or Dermatomycoses—Trichomycosis Axillaris Flava, Rubra and Nigra, Tricho-Aspergillosis, Cryptococcosis Epidermica, Intertrigo Saccharomycetica, Furunculosis Cryptococcica, Blastomycosis Cutis, Tinea Flava, Tinea Nigra, Dhobie Itch (Tinea Cruris), Mycotic Pruritus Ani, Tinea Imbricata (Tokelau), Pinta, Accladiosis.

I shall deal briefly with the subject of dermatomycoses, or skin diseases due to fungi.

Skin diseases of fungal origin may be separated into two large groups:

1. Mycotic diseases of the hair—trichomycoses.

2. Mycotic diseases of the skin proper—dermatomycoses, *sensu stricto*.

The subject is large, so I will limit myself to a brief discussion of a few of the lesser known conditions of both types in the investigation of which I happened to take part.

TRICHOMYCOSIS AXILLARIS FLAVA, RUBRA AND NIGRA

Remarks.—Trichomycosis axillaris has been imperfectly known for years under the term lepothrix, but the various clinical types were not differentiated, and nothing definite was known of the etiology, the disease being ascribed to the most diverse germs. In 1910-1911, while in Ceylon, I studied the condition and separated three principal varieties of the disease: the yellow variety, the black variety and the red variety.

Synonyms.—Lepothrix (pro parte), trichomycosis palmellina (pro parte), trichonocardiasis axillaris, trichomycosis nodosa, trichomycosis chromatica, chromotrichomycosis, Castellani's trichomycosis.

History.—Paxton, in 1869, described a nodular condition of the hair of the axillary and genital regions, which was later named lepothrix by

* The Adolph Gehrmann Lectures of the University of Illinois College of Medicine, 1926.

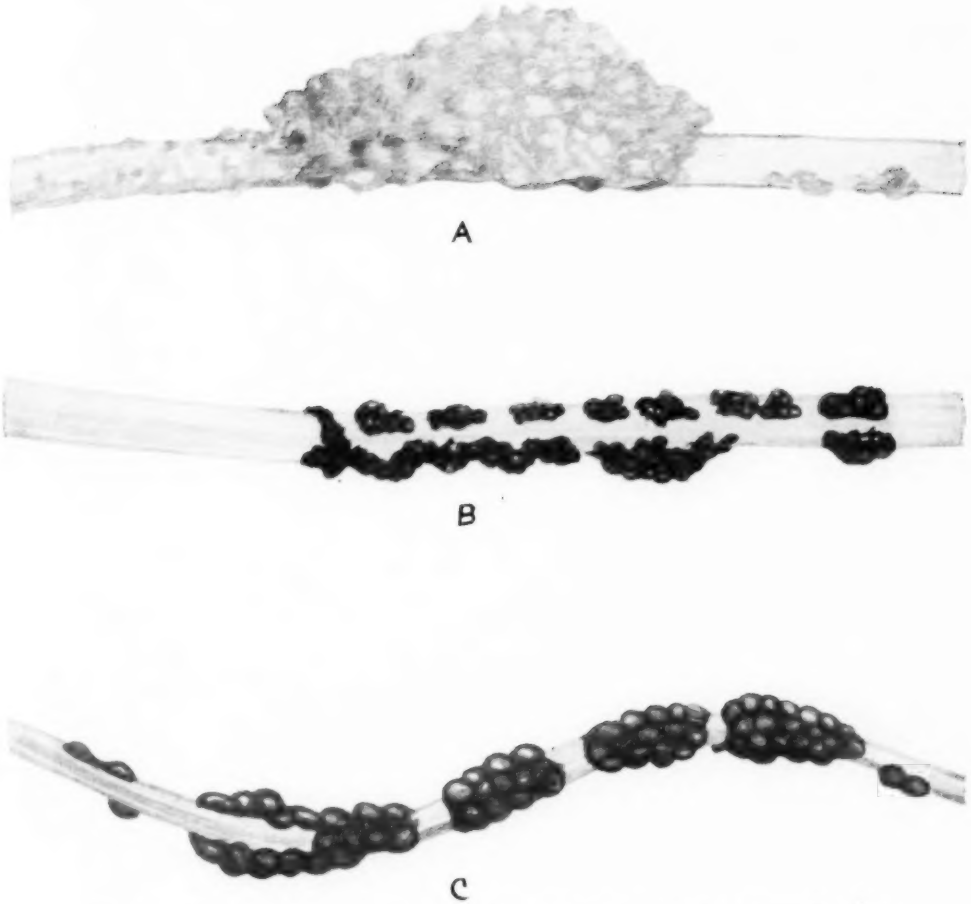

Fig. 1.—*A*, trichomycosis flava; *B*, trichomycosis nigra; *C*, trichomycosis rubra

UNIV. OF MICH.

Wilson. Paxton's work was confirmed by Patterson and Pick, who called the condition trichomycosis palmellina. Payne, Sonnonberg, Babes and Barthelemy carried out investigations on the etiology of the condition and described various bacteria, including *Bacillus prodigiosus,* as causative agents. Eisner considered it to be caused by a diplococcus. In 1910-1911, I made the following differentiation: the yellow variety due to a fungus which I called *Nocardia tenuis (Discomyces, Streptothrix, Cohnistreptothrix tenuis);* the black variety due to the same fungus plus a black pigment producing coccus, which I called *Micrococcus nigrescens,* and the red variety, due to the same fungus plus a red pigment producing coccus, to which later Chalmers and O'Farrell gave the name *M. castellanii.* These two authors called the condition trichonocardiasis. Recently, Macfie has thoroughly investigated the condition in West Africa and has described a subvariety, which he has called trichomycosis fusca.

Geographic Distribution.—The yellow variety is common in all climates. The red variety is encountered much more frequently in the tropical than in temperate climates. The black variety is extremely rare in the temperate zone.

Etiology and Pathology.—As already stated, the most widely different organisms have been described as causative agents by various observers. In 1911, in Ceylon, studying the condition in the tropics, I carried out some researches on the three principal varieties of the disease—the yellow, the black and the red—with the object of elucidating their etiology. My researches showed that in the yellow variety a minute fungus was constantly present in enormous numbers (*Nocardia tenuis* Castellani, 1911; synonyms: *Streptothrix, Discomyces, Cohnistreptothrix tenuis* Castellani). In the black variety I found the same fungus plus a black pigment producing coccus, *Micrococcus nigrescens* Castellani, 1911, living in symbiosis with it; in the red variety I observed the same fungus plus a red pigment producing coccus living in symbiosis with it, which later was called *Micrococcus (Rhodococcus) castellanii* by Chalmers and O'Farrell, who made a thorough investigation of the disease in the Sudan in 1913.

Microscopic examination of the affected hair with low power shows that the shaft is covered at several places by roundish formations, which partially or totally encircle it. Under a high power, a cleared specimen being used, these formations will be seen to consist in the yellow variety of enormous numbers of the bacillary-like mycelial hyphae of *Nocardia tenuis,* embedded in an amorphous cementing substance. In the red and black varieties, in addition to the masses of bacillary-like bodies which are the mycelial segments of *N. tenuis,* large groups of coccus-like bodies are observed (*M. nigrescens* in the black variety and *M. castellanii* in

the red variety). In addition, two other etiologic varieties may be encountered, although rarely: a black variety in which the pigmentation is caused by a black pigment-producing cryptococcus which I have called *C. metaniger,* and a red variety in which the pigmentation is caused by a red pigment producing cryptococcus, *C. rubrarugosus.*

Nocardia tenuis, Castellani, 1912.

Synonyms.—Discomyces, Streptothrix, Cohnistreptothrix tenuis Castellani, 1912.

The microscopic examination of the nodules in cleared specimens reveals the presence of enormous numbers of rodlike bodies—the bacilliform hyphae of a nocardia—which are gram-positive, but not acid-fast. If the nodules are kept in alcohol or formaldehyde for several months the fungus apparently loses partially or totally its property of being stainable by Gram's method. The bacillary bodies vary in length from 2 to 8 microns and more; the average breadth is approximately from 0.14 to 0.3 microns; they may be straight or slightly bent, and seldom if ever branching; they are packed fairly close together, and are embedded in a cementing substance, apparently secreted by the fungus. This ground substance is fixed to the cortex of the hair, and a portion of it lies under the cuticle and some of the superficial layers of the cortex. In regard to cultivation, Chalmers and O'Farrell observed some slight growth in hanging drops of equal parts of human serum and physiologic sodium chloride solution. The fungus grew, showing branching forms and coccal forms. The branching was monopodial and the hyphae were nonseptate. Macfie, in one case, succeeded in cultivating the fungus on ascitic sugar agar, the colonies being small and translucent.

Micrococcus (Nigrococcus) nigrescens Castellani, 1911.

Micrococcus nigrescens is a gram-positive, rather large, nonmotile coccus, which in certain mediums may take the appearance of a cocco bacillus. It produces a black pigment. Sugar mediums are more suitable for the growth of the organism than the ordinary agar.

Sabouraud Maltose Agar.—Colonies appear from twenty-four to forty-eight hours after inoculation. They are roundish and at first white, but after a couple of days the center of each colony turns black, and the pigmentation slowly spreads eccentrically. After a time, the colonies may coalesce into a jet black mass.

Dextrose Agar.—Growth similar to Sabouraud, but slightly less abundant. The black pigmentation develops from the center of the colonies and slowly spreads toward the periphery.

Levulose Agar.—Identical to dextrose.

Saccharine Agar.—The pigmentation is less pronounced and does not spread to the whole of the growth.

Raffinose Agar.—Same as saccharine.

Lactose Agar.—Scanty pigmentation.

Alkaline Maltose Agar.—Black pigmentation well marked, though in many cases it does not extend to the whole of the growth.

Acid Maltose Agar.—Growth less abundant than on alkaline maltose. Black pigmentation well marked.

Mannite Agar.—As alkaline maltose.

Inulin.—As alkaline maltose, but pigmentation less pronounced.

Saccharose.—As inulin agar.

Glycerin Agar.—Abundant growth, the whole of which after a time becomes jet black.

Galactose.—As inulin.

Adonite.—As acid maltose.

Ordinary Agar.—Growth much less abundant than on most sugar agars, and black pigmentation less marked.

Serum.—Growth fairly abundant, but there is only a trace of pigmentation. The medium is not liquefied.

Gelatin.—No liquefaction. The growth on the surface shows, after a time, some dark pigmentation, but the growth along the stab is white.

Milk.—No change.

Broth.—General turbidity. A thin pellicle is often present. Microscopic examination shows cocci arranged in pairs or irregularly. They do not appear to be capsulated.

Peptone Water.—Some growth at the bottom, while the rest of the tube is clear.

Sugar Broths.—No formation of acid or gas.

Indol.—Most strains produce a trace of indol.

Micrococcus (Rhodococcus) castellanii Chalmers and O'Farrell, 1913.

I isolated this coccus in 1910 in Ceylon from the red variety, and later it was further investigated in the Sudan and named by Chalmers and O'Farrell *Micrococcus castellanii*. It is more difficult to isolate and to grow than the coccus observed in the black type of the disease. It is interesting to note that as a rule this organism grows better and shows more pigment on ordinary agar than on sugar mediums. The coccus is round or oval, measuring from about 0.3 to 0.7 microns in diameter. It is separated medianly by a clear central line into two half-moon shaped segments, thus producing a diplococcal appearance. It is colorless and nonmotile, but excretes an amorphous nongranular lemon-chrome pigment. In old cultures another pigment of dark brownish red appears (according to Ridgway's standards, this color is madder brown), but its relationship to the earlier yellow pigment can easily be proved, as demonstrated by Chalmers and O'Farrell, by removing and suspending some of it in a sufficiency of distilled water, when the fluid at once resembles a similar suspension of the yellow pigment. When, however, this is done in a small quantity of water, a faint reddish tinge can be observed. The best medium for showing the striking yellow pigment is the potato, on which in twenty-four hours the growth assumes that color. The red pigment shows best in the ordinary agar slope, which, when old, exhibits the dark red pigment in the center and the yellow pigment at the sides. The organism is easily stained by all the ordinary staining reagents, and is gram-positive. However, even in preparations showing most of the cocci well colored by Gram's method a few cocci may be seen decolorized. The organism does not appear to have a capsule.

The coccus grows aerobically and also anaerobically. The optimum temperature appears to be 37 C.; it also grows at 20 C. on agar slopes, but not as abundantly as at 37 C., and the pigmentation is much less marked. The rate of growth depends somewhat on the medium; it grows quickest on potato, and next best on ordinary or glycerin agar. On solid mediums there is a yellow

growth at first, but on most mediums, if kept long enough, some red coloration will subsequently be found. The best medium for the red coloration, as already stated, appears to be the ordinary agar slope. With regard to the other agar mediums, the coccus grows well on dextrose and maltose agar. Like *M. nigrescens* it produces neither acid nor gas in dextrose, levulose, galactose, arabinose, lactose, saccharose, raffinose, dextrin, inulin, amygdalin, erythrite, adonite, dulcite, isodulcite, mannite, sorbite or inosite. It grows slowly on blood serum, which it does not liquefy, and well in broth and peptone water, in which it forms a general turbidity. Gelatin is not liquefied. It does not produce indol.

In agar stabs the growth is confined to the line of puncture and to the formation of a small yellow knob on the surface.

Classification of Micrococcus Castellanii.—Chalmers and O'Farrell have thoroughly investigated this point:

The organism belongs to the family *Coccaceae* (Zopf, emended Migula), and must be grouped with the genus *Micrococcus* (Hallier, 1866, emended Cohn, 1872). In this genus it certainly belongs to those forms which grow well on agar mediums and are gram-positive, and in this division it belongs to the subdivision which produces colors.

The cocci of this subdivision which possess red coloration are only three in number—*M. roseus* (Baum, 1885), *M. ruber* (Trommsdorff, 1904), and *M. rubidus* (Hefferan). Under the term *M. roseus* (Baum, emended Lehmann and Neumann) are gathered a large number of rose-colored diplococci which are not known to be parasitic, and which produce growths on potato which are limited to the streaks. These growths are faint rose color with an oily luster, and are often surrounded by a whitish glistening zone, thus giving rise to a very different appearance from that produced by *M. castellanii*. *M. ruber* (Trommsdorff, 1904), or, as it is sometimes named, *M. chromidrogenus ruber* is characterized by the fact that it does not grow on potato; its coloring matter is not soluble in water, and when treated by sulphuric acid the red color turns blue-green, while *M. castellanii* does grow on potato and its coloring matter is unaffected by 25 per cent sulphuric acid; *M. ruber* appears to be closely related to *M. roseus* var. *carneus*, and to be nonparasitic.

Cryptococcus metaniger Castellani and *Cryptococcus rubrarugosus* Castellani

These two organisms have been briefly described in the first lecture.

Pathology.—From my own observations and those of Chalmers and O'Farrell it would appear that when the nocardial fungus first attacks the hair, it grows and pushes its way under a cuticular scale and then works its way into the cortex, raising, in so doing, its superficial fibers, which, together with the cuticular scale, form a covering or protection for the fungus, which probably finds its nutriment in the cortex. The fungus does not penetrate deep into the cortex, but grows outward, forming the characteristic nodules. This method of growth explains why the hair is so little affected; the deeper layers of the cortex, the medulla and the root of the hair are not involved, though the hair at times loses its luster. In an early stage of the infection the cuticle

and some fibers of the cortex may be seen to be raised in ridges, which run in wavy lines across the shaft of the hair, transversely to its long axis; masses of the fungus may be seen growing under these ridges. A nodule consists of a mass of the rodlike hyphae of *Nocardia* embedded in a firm homogeneous ground substance. In the usual black and red varieties the nocardial masses are surrounded by large numbers of cocci—*M. nigrescens* in the case of *Trichomycosis nigra* and *M. castellanii* in the case of *T. rubra*.

Symptomatology.—Trichomycosis Flava: The affected hairs of the axilla and pubes present nodular formations of a yellow, and, occasionally, yellow grayish color, plainly visible to the naked eye, of rather soft consistence in the tropics, and capable of being removed easily by scraping with a triangular needle or any similar instrument. The nodules are much harder and generally of much smaller size in temperate zones, so much so that at one time I considered that there were two distinct clinical varieties of trichomycosis flava: the tropical variety,

Fig. 2.—Trichomycosis flava.

characterized by the nodules being large, soft and easily removed, and the European variety of lepothrix, *sensu stricto*, characterized by the nodules being hard, small and difficult to remove. Microscopic examination of cleared specimens shows the formations to consist solely of enormous numbers of bacillary-like bodies—the rodlike hyphae of *Nocardia tenuis* embedded into an amorphous cementing substance. Trichomycosis flava affects hairs of the axillary regions, and more rarely those of the pubes. The affected hairs may occasionally become lusterless and somewhat depigmented.

Trichomycosis Nigra: The nodules are generally of the same size and consistency as those in trichomycosis flava, but are black. Microscopic examination shows masses of rodlike nocardial elements (*Nocardia tenuis*), surrounded by large number of cocci (*Micrococcus nigrescens*). *T. nigra* appears to affect only the axillary hairs, as I have never encountered trichomycosis nigra of the pubic hairs.

Trichomycosis Rubra: The nodules are red, but the red pigmentation is of varied intensity, and Macfie has described a subvariety of less vivid color than usual which he has called *Trichomycosis fusca*. Microscopic examination shows the nodules to consist of large masses of

nocardial elements (*Nocardia tenuis*), surrounded by masses of a coccus (*Micrococcus castellanii*). Trichomycosis rubra may affect both the axillary and the pubic hairs.

Mixed Types.—It is not at all rare in the tropics to find patients affected with two varieties of trichomycosis: the hairs of one armpit may show the yellow variety, while the hairs of the other armpit may present the black type or the red type. At times the same individual hair may present some yellow and other black or red nodules. I have not yet observed all three varieties present at the same time on the same patient.

Method of Infection.—The usual method of infection appears to be from man to man. This is strongly supported by the following observation made by Chalmers and O'Farrell in the Sudan:

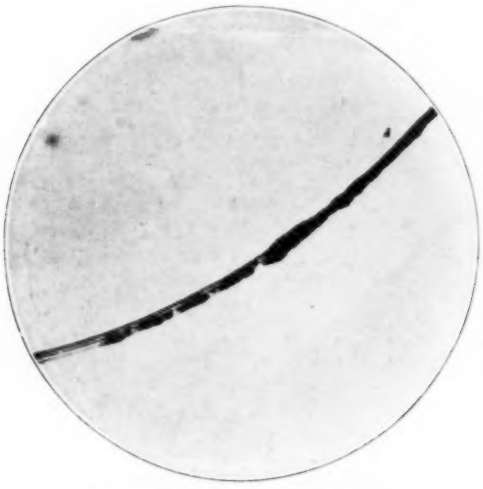

Fig. 3.—Trichomycosis nigra.

A young European, known to be quite uninfected with trichomycosis, became greatly interested in the work carried out on the condition at Khartoum. He examined cases which came to the laboratory, and handled and examined fresh hairs removed from the axillae. When he visited the laboratory he was clad in tennis attire, and as he moved about his shirt rucked up from below repeatedly, and whenever this occurred he adjusted it by pulling forward his leather belt with one hand while he pushed the soft shirt downwards inside his trousers with the other. Two weeks after examining cases he first noticed a reddish appearance on the hairs of the pubes. On examination it was found that the hairs were infected with the red variety of trichomycosis—that is to say, with the variety which he saw and handled in abundance. It grew rapidly on the pubic hairs, but did not extend to the axillae.

This observation tends to show that the incubation period is about two weeks, this being the length of time necessary before the infection produces sufficient growth on the hairs to attract attention.

Complications.—In acute cases in which the infection is heavy an erythematous condition of the axillae may be observed. Hyperidrosis is common, but so far I have come across only one case of chromidrosis associated with trichomycosis. In certain cases, I have noticed a yellowish discoloration of the skin of the axilla, and in one more completely investigated case, a nocardial fungus similar to or identical with *Nocardia tenuis* was found in the patches.

Diagnosis.—The diagnosis is easy, being based on the presence of yellow nodules (trichomycosis flava), red nodules (trichomycosis rubra) and black nodules (trichomycosis nigra) on the hairs of the axillae and pubes.

Differential Diagnosis.—The various types of trichomycosis have to be differentiated from Cheadle and Morris's tinea nodosa (known also as Beigel's trichosporosis), Behrend's nodular trichosporosis

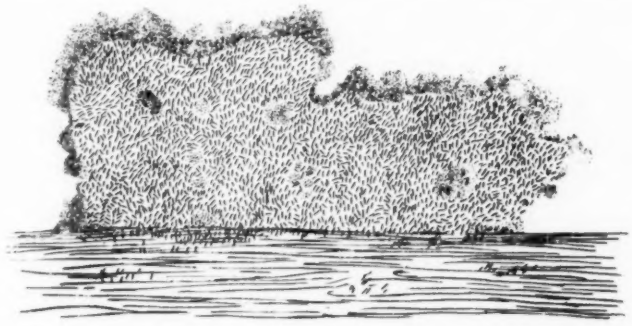

Fig. 4.—Nodule of trichomycosis nigra; the bacillus-like hyphae of Nocardia tenuis and masses of Nigrococcus should be noted.

(Behrend's trichosporosis), Piedra (trichosporosis tropicalis), Unna's piedra nostras (Unna's trichosporosis) and, finally, Du Bois' trichosporosis. The differentiation is easy in the case of trichomycosis nigra and trichomycosis rubra, as none of the foregoing conditions show any black or red pigmentation. These conditions can be differentiated from trichomycosis flava, as they seldom, if ever, attack the axillary hair, and their causative fungi belong to the genus *Trichosporum* Behrend, 1890. The hyphomycetes belonging to the genus are of much larger dimensions and show totally different morphologic characters from *Nocardia tenuis*. The fungi of the genus *Trichosporum* are arthrosporales which live parasitically on the hairs in the form of large oval or roundish bodies, varying in diameter from 3 to 4 microns to 12 to 15 microns. Fungi of the genus *Nocardia*, Toni and Trevisan, on the other hand, are bacilliform, and usually 1 micron or less in diameter.

Tinea nodosa, often known as Beigel's trichosporosis, was first described by Cheadle and Morris in London, and later by Beigel in Germany. It is a nodular

condition of the hair of the scalp and is caused by *Trichosporum beigeli* Rabenhorst, 1867.

Behrend's trichosporosis (Behrend's nodular trichomycosis) affects the hair of the beard and is caused by *Trichosporum ovoides* Behrend, 1890.

Unna's trichosporosis, or piedra nostras, is similar to Behrend's trichosporosis; it attacks the hair of the mustache and beard, and is caused by *Trichosporum ovale* Unna, 1896.

Trichosporosis tropicalis (piedra) is common in certain parts of South America; it generally affects the hair of the scalp, and is characterized by the presence of extremely hard nodules, hence the name piedra (stone). It is caused by *T. giganteum* Behrend, 1890.

Du Bois' trichosporosis has been observed on the pubic hair of persons suffering from diabetes and is caused by *T. glycophile* Du Bois, 1910.

The botanic characters of the genus *Trichosporum* have been given in the first lecture.

Prognosis.—None of the varieties of trichomycosis axillaris has a tendency to spontaneous cure while the patients reside in a hot tropical country. In a patient going to a cold climate the condition may subside or even disappear completely. Trichomycosis nigra seems to disappear in a cold climate much more rapidly than trichomycosis flava or trichomycosis rubra.

Trichomycosis axillaris is a disease of not much importance, but before the habit of shaving the axillae became general European women in the tropics at times were greatly distressed by it, as when they wore low-necked dresses the disfiguring red or black patches in the axillary regions were visible. It is a curious fact also that when natives are affected with trichomycosis they seem to regard it with disgust and readily seek treatment; Chalmers and O'Farrell have brought forward the hypothesis that the general custom of shaving the axillary hair among certain native tribes may have originated in their profound dislike of this complaint.

Treatment.—The treatment originally used by me in Ceylon is generally efficacious. The affected hairs are dabbed twice daily with an alcoholic or aqueous solution of formaldehyde (solution formaldehyde U. S. P., 4 cc., alcohol to make 180 cc.); at night a 2 to 5 per cent sulphur ointment is rubbed in. To allay the irritation of the skin caused by this treatment, calamine lotion may be applied. Resorcin and salicylic alcoholic solutions have also been used, but as a rule they are not so efficacious. Tincture of iodine alone is practically without effect, but it is useful in obstinate cases after a few days of the formaldehyde sulphur treatment. Chrysarobin ointment is messy and does not induce any striking improvement. The application of ether, chloroform or creosote occasionally causes an improvement, but the skin is often irritated. Dabbing the parts with a strong solution of lysol is at times efficacious.

ASPERGILLOSIS AND PENICILLIOSIS OF THE BEARD AND MUSTACHE

The hairs of the beard and mustache are covered with dark gray, black or greenish nodules which on microscopic examination consist of mycelium and fructifications of fungi of aspergillar or penicilliar type. I saw the first case in equatorial Africa in an Indian merchant. Chalmers and I observed several such cases in Ceylon. I saw also a case in an Italian patient residing in England. The simplest treatment consists, of course, in shaving, but if the patient does not wish to shave,

Fig. 5.—Penicilliosis capitis (from Dr. Picado).

turpentine oil and diluted formaldehyde, or a strong alcoholic solution of salicylic acid, will be found useful.

Aspergillosis and Penicilliosis Capitis.—Fungi of the genus *Aspergillus* and of the genus *Penicillium* may occasionally attack the hair of the scalp. They may also attack the nails (aspergillosis and penicilliosis ungium).

Tinea Decalvans Tropicalis

Synonym.—La-li-tou, pro parte.

In Ceylon some years ago I described a peculiar trichophytic disease of the scalp that causes permanent baldness. The scalp presents one or several white patches covered with an enormous number of heaped up white pityriasic scales. After a time, the scales disappear and smooth

bald patches remain. The scales and the broken hairs examined microscopically show the presence of a trichophyton which when cultivated closely resembles *Trichophyton violaceum* of Bodin. I called it *Trichophyton decalvans* as the patches remain permanently bald. The condition is common also in China, as recently shown by Ota. The traveler in southern China is often surprised at the number of natives affected with baldness. Baldness has been studied by native Chinese medical men for centuries. In the famous Chinese medical book, "Bin-yuan-hou-lun" (605-609 A. D.), three types of alopecia are discussed: the white alopecia, the red alopecia and the demon-like alopecia (perhaps alopecia areata).

At present the natives use the term la-li-tou to indicate baldness in general but principally the types of parasitic origin. Ota has found that this term covers favus, and tinea decalvans. He believes that at

Figure 6

Figure 7

Fig. 6.—Tinea decalvans tropicalis.
Fig. 7.—Tinea louisianica.

least biologically the *Trichophyton decalvans* is a different species from *Trichophyton violaceum*, as the lesions caused by the two organisms are totally different.

Tinea Balcanica

During the Great War while in Serbia and Macedonia, I found several cases of a peculiar diffuse tinea capitis which clinically gave the impression of profuse seborrhea sicca. The condition was caused by a somewhat peculiar fungus with transitional characteristics between the trichophytons and the microporous. I called it *Trichophyton balcaneum*. A short description of it has been given in lecture I.

Tinea caused by *Trichophyton louisianicum*

In colored children in New Orleans one occasionally sees a condition of the neck and portions of the scalp characterized by the presence of

roundish or oval white desquamating patches which may fuse together. In these cases, in superficial scrapings often one finds an enormous number of yeastlike organisms, which I have grown; in deep scrapings a trichophyton-like fungus is found which may attack the epidermis, the follicles and the hair. The yeastlike fungi belong to the genus *Cryptococcus* and *Monilia* and the genus *Saccharomyces*; the trychophyton fungus I have described in the first lecture (*T. louisianicum*).

A moist variety caused apparently by the same trichophyton is also encountered: the patches show thick crusts rather than scales and the condition may be confused with a form of seborrhea on which a pyogenic infection has become engrafted.

FURUNCULOSIS BLASTOMYCETICA OR CRYPTOCOCCICA

(Folliculitis Decalvans Cryptococcica, pro parte)

Synonyms.—Furunculosis cryptococcica; pseudofurunculosis blastomycetica; furunculosis moniliaca; furunculosis mycetica; folliculitis decalvans cryptococcica; folliculitis decalvans saccharomycetica; folliculitis decalvans moniliaca.

History.—Some years ago I described a peculiar type of blastomycosis indistinguishable clinically from ordinary furunculosis, which I called at the time "furunculosis cryptococcica," and as the condition in the first two cases principally affected the scalp under the form of a purulent folliculitis and loss of hair I suggested for it, also, the term "folliculitis decalvans cryptococcica." To date I have seen five cases; three patients contracted the infection in Great Britain and two in India.

Etiology.—The fungi found are yeastlike, and it is difficult to decide whether they belong to the genus *Cryptococcus* or the genus *Monilia*. One of them (*Cryptococcus castellanii* Re) has been fairly completely described in the first lecture.[1] The strains of fungus isolated from the Indian cases are somewhat different from the organisms grown from the English cases, and differ also, though slightly, among themselves.

Symptomatology.—The clinical picture of this blastomycosis is totally different from the usual types of blastomycosis cutis which are characterized by the presence of patches with vegetating papillary excrescences which give them a characteristic verrucose or warty appearance. Furunculosis blastomycetica is clinically indistinguishable from ordinary severe furunculosis. Boils, indistinguishable from ordinary boils, may be present on the face and body, but the region mostly affected, as a rule, is the scalp. In this region numerous pustules flattened or conical, each pierced by a hair, may be seen; in addition, there may be infiltrated

1. Castellani, Aldo: Fungi and Fungous Diseases: Lecture I (Cryptococcus Castellanii Re), Arch. Dermat. & Syph. **16**:383, 571 and 714 (Oct., Nov. and Dec.) 1927.

lesions which somewhat resemble flat carbuncles and later open and discharge through several openings.

The hair in the affected areas falls off, and patches of baldness, sometimes permanent, remain.

Paronichia may be present.

ILLUSTRATIVE CASE

Mr. D., married, aged 34, a Dane who had resided in London for twelve years preceding admission, was fond of all outdoor sports, and was a famous football player. The condition started in March, 1921, with apparently follicular pustules on the scalp and two or three furunculous-like lesions on the forehead and face. Later, extremely painful carbuncle-like lesions developed. A bacteriologic examination of the pus was made at a well known clinical laboratory in London, and *Staphylococcus aureus* was found. An autogenous staphylococcus vaccine and also a stock vaccine were given for eighteen months without any benefit. On the advice of his medical attendant the patient then came to consult me.

Apart from a boil on the left forearm and one on the supra-orbital region, all the lesions were on the scalp; several patches of baldness, with the skin smooth and whitish, were plainly visible; there were also numerous follicular pustules, some flat, some conical and most of them surrounded by a zone of hyperemia. Two extremely painful carbuncle-like lesions, one not yet opened and the other with several openings discharging, were present. I made a bacteriologic and mycologic examination. Microscopically the pus contained only gram-positive cocci. The dextrose agar tubes inoculated with the pus showed abundant growth of *Staphylococcus aureus*. The microscopic examination of the growth, however, showed here and there a yeastlike cell in several tubes. After plating and replating, this yeastlike organism was isolated with great difficulty. Later, I grew the same fungus from a number of lesions, some of which were unopened. It was a cryptococcus with the following principal characters: cultures on dextrose agar were abundant with a smooth surface, at first white and later yellowish. The fungus did not produce gas in any carbohydrate at first; later, it caused production of gas in dextrose and levulose. It was agglutinated by the patient's blood in high dilution (1 in 400). An interesting point arises: Which organism was the true causative agent of the condition: the cryptococcus or the staphylococcus? In my opinion, it was the cryptococcus, for the following reasons: Staphylococcus vaccines did not have any beneficial action whatever. The cryptococcus was agglutinated by the patient's blood and the condition improved and finally disappeared on a treatment consisting of massive doses of potassium iodide given internally, and a cryptococcus vaccine subcutaneously injected. It is well known that potassium iodide not only does not have any beneficial action on staphylococcus furunculosis, but also makes it much worse.

Diagnosis.—The diagnosis can be made only by mycologic methods. In all cases of persistent furunculosis that do not answer to staphylococcus vaccine the possibility of furunculosis blastomycetica should be kept in mind.

Prognosis.—The disease does not have a tendency to spontaneous cure.

Treatment.—Potassium iodide in large doses, given for long periods, often induces a cure. A vaccine prepared with the fungus seems to be useful, but alone is not sufficient to bring about a cure.

BLASTOMYCOSIS CUTIS

I will say only a few words concerning the etiology of this condition. It is generally stated that the usual type (Gilchrist type) is due to *Cryptococcus dermatitidis* Gilchrist and Rixford (synonym, *Blastomyces gilchristi*), and that the deep ulcerative variety, occasionally seen in California, may be caused by a possibly different fungus—*Cryptococcus immitis* (synonym, *Coccidioides immitis* Rixford and Gilchrist). In the first lecture I quoted the usual description given of these two fungi, but my opinion based on researches which are not complete is that the term "Cryptococcus dermatitidis" (synonym *Blastomyces gilchristi*) probably covers several fungal species.

Fig. 8.—Blastomycosis (cryptococcosis) epidermica.

From two cases of blastomycosis cutis in New Orleans I isolated a fungus which differs from all the strains in my collection. The best mediums for the differentiation of these fungi are mannitol agar, galactose agar and potato. My strain on potato produces a brownish crinkled or granular growth, while the other strains produce a white fluffy growth; on mannitol agar the strain I have isolated produces a white fluffy growth often with furrows radiating from the center. If further investigation should prove this growth to be a new species I would suggest the name *Blastomyces tulanensis*, and the following principal types of fungi found in blastomycosis might be distinguished: (*a*) Growth on potato fluffy and white; on mannitol agar grayish, with a somewhat woolly appearance; on galactose agar grayish, dark grayish or fawn colored, with scanty duvet—*Blastomyces dermatitidis* (synonym, *B. gilchristi*). (*b*) Growth on potato fluffy and white; on mannitol agar slate colored; on galactose agar grayish, dark grayish or fawn—*Blastomyces immitis*. (*c*) Growth on potato granular, brown; on man-

nitol agar white and fluffy with radiating furrows; on galactose agar white and fluffy, often with furrows radiating from the center—*Blastomyces tulanensis.*

BLASTOMYCOSIS (CRYPTOCOCCOSIS) EPIDERMICA

Remarks.—Blastomycosis epidermica was described by me in Ceylon some years ago. Clinically, it has nothing to do with the usual types of blastomycosis, but it may be called blastomycosis, as it is caused by a yeastlike organism.

Synonyms.—Saccharomycosis epidermica, cryptococcosis epidermica.

History and Geographic Distribution.—While in Ceylon, I noticed on the skin of one of my bungalow servants several brownish dirty looking patches, which looked much like dirt. He told me, however, that they

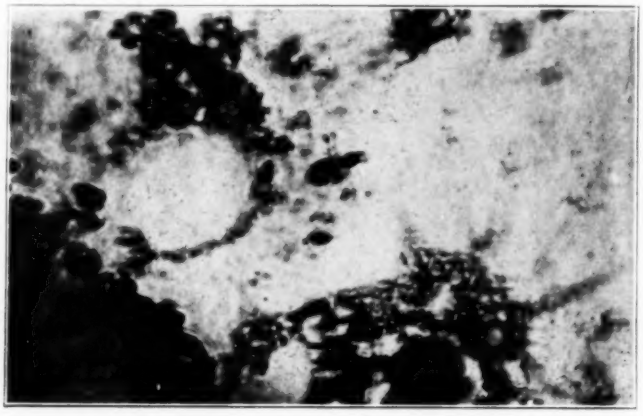

Fig. 9.—Cryptococcus from blastomycosis (cryptococcosis) epidermica.

did not disappear when soap was used. I made a scraping and saw that these patches consisted of a large number of budding cells, which I believed to be a saccharomyces. I found the same patches not only in other natives but also in Europeans, especially on the chest and arms, and called the condition "saccharomycosis epidermica," which term I changed later into cryptococcosis epidermica." I did not succeed in growing the fungus. Chalmers and others have confirmed my observations in the Sudan and North Africa, but the organism has not yet been cultivated.

Etiology—The causal organism is *Cryptococcus epidermidis* Castellani, 1914.

Symptomatology.—The condition is fairly frequent in natives and Europeans who have resided for some years in the tropics. It is characterized by the presence on the arms, and more rarely on the chest and neck, of small roundish dirty yellow or brownish patches, which can

generally be removed by thorough scraping. These patches consist of large numbers of blastomyces-like elements of various sizes, rounded or oval, which so far have not been cultivated.

Treatment.—Ordinary soap does not remove the patches but thorough scraping with sand soap and hot water is generally sufficient to remove them. In obstinate cases a salicylic sulphur ointment is useful.

Fig. 10.—Epidermophytosis interdigitalis and dermatitis interdigitalis blastomycetica; superficial scrapings showed the presence of a large number of yeast-like fungi; deep scrapings showed the presence of Epidermophyton.

Clinical Varieties of Blastomycosis Epidermica

Blastomycosis (Cryptococcosis) Epidermica Alba and Rosea.—White patches consisting solely of yeastlike fungi, without inflammatory signs, are occasionally seen, especially in natives. I have several times grown the fungi, which belong to the genera *Cryptococcus, Saccharomyces* and *Monilia.* In a case with pinkish patches, a cryptococcus was present which when cultivated on laboratory mediums gave rise to pink colonies.

Fig. 11.—Epidermophyton found in deep scrapings in the case of mixed blastomycosis interdigitalis and epidermophytosis interdigitalis shown in figure 10.

Fig. 12.—Same case as shown in figure 10.

Fig. 13.—Furunculosis cryptococcica (folliculitis decalvans cryptococcica).

UNIV OF MICH.

INTERTRIGO BLASTOMYCETICA AND DERMATITIS BLASTOMYCETICA INTERDIGITALIS

Intertrigo Blastomycetica

Synonyms.—Intertrigo saccharomycetica, intertrigo cryptococcica, intertrigo moniliaca.

Intertrigo blastomycetica was first described by me in Ceylon in 1907. In Europeans the affected skin—usually the skin of the inguinal regions—is reddened, and there may be a slight exudation. The border of the eruption may be fairly well marked, but it is not distinctly raised. In many cases there is not much itching. In scrapings, a yeastlike fungus is found which I called in 1907 *Saccharomyces samboni.* In other cases

Fig. 14.—Furunculosis blastomycetica or cryptococcica (folliculitis decalvans cryptococcica).

I have found organisms of the genera *Monilia* and *Cryptococcus.* In recent years a similar disease, saccharomycosis or blastomycosis interdigitalis, has been described by several observers, and I have seen some cases myself; in the majority of my cases an epidermophyton was present in addition to numerous yeastlike bodies; that is, in superficial scrapings only yeastlike organisms were present, while in deep scrapings the yeastlike fungus disappeared or was extremely scanty and an epidermophyton was present.

TINEA FLAVA

Synonyms.—Microsporosis flava (Castellani), pityriasis versicolor (Castellani), achromia squamosa (Crocker), achromie parasitaire (Jeanselme).

Remarks.—This mycosis is exceedingly common in all tropical countries and especially so in southern India, Ceylon, Malaya, Java, Indo China and China. I have found it fairly common in Central America, Honduras, the low lying districts of Guatemala and Panama. The condition is present also in my experience in Louisiana.

This mycosis for a long time was considered identical with the pityriasis versicolor of the temperate zones, but I venture to say that my investigations and those of Jeanselme have proved that the two conditions are different. There are still some authorities, however, who apply the term pityriasis versicolor to tinea flava.

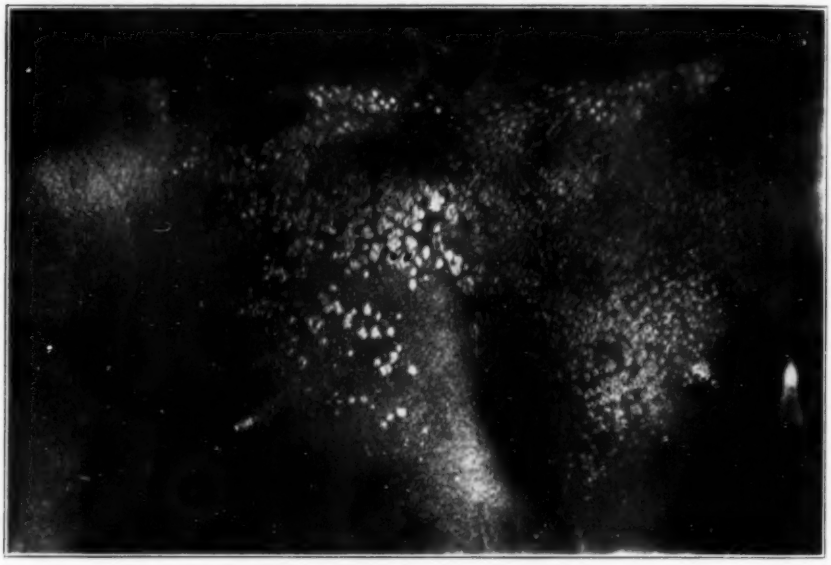

Fig. 15.—Tinea flava, variety guttata.

Etiology.—A fungus in scrapings morphologically similar to, or identical with, the fungus found in pityriasis versicolor is found sometimes in great abundance. In recent cases the fungus is abundant, with a large amount of mycelium, and the spores which have a double contour may run into clusters. In older patches the mycelial segments are thick with numerous swellings, constrictions and other irregularities in their shape. The spores are much more scanty and do not collect in clusters.

Symptomatology.—The condition is characterized by the presence of bright yellow patches. In colored people these patches stand out well, the color being much lighter than the surrounding healthy skin. The yellow may be of different hues—from dark, deep orange yellow to light canary yellow, almost white. The patches are generally roundish or oval, smooth and sharply defined, with margins not elevated. In

recent patches, however, the margin may be slightly elevated. Sometimes patches coalesce, giving rise to the diffuse form of the disease. The regions of the body most frequently affected are, in order of frequency, the face, neck, chest and abdomen. There is not as a rule any pruritus except occasionally in recent patches. The patches are not desquamating or only slightly so. Occasionally, in Ceylon and southern

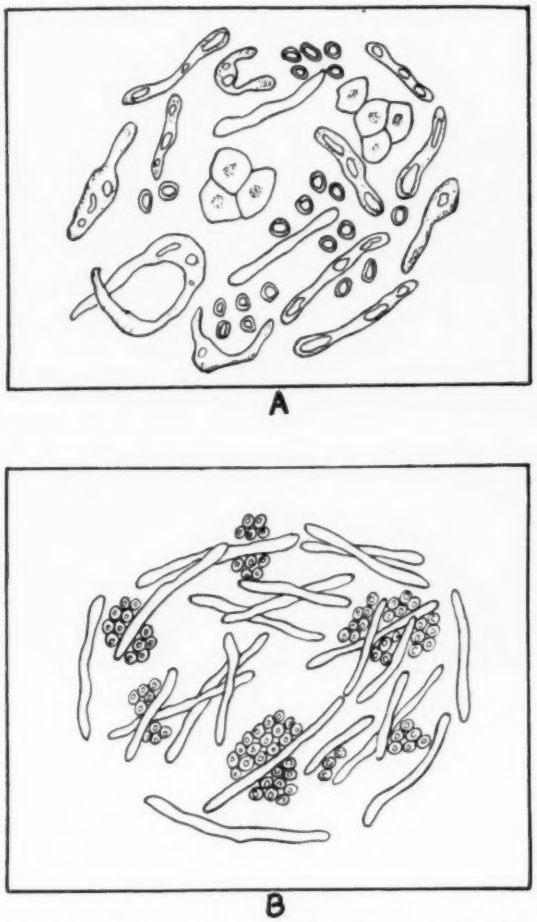

Fig. 16.—Fungus found in tinea flava (Malassezia tropica); *A*, preparation from old chronic patch; *B*, preparation from a recent patch.

India, one is surprised to see a Singalese or Tamil native with the face, chest, neck and trunk of a much lighter color than in the other natives. On closer examination it will be found that the apparently light color of the skin is merely due to a light diffuse form of tinea flava.

In Ceylon, when the spots are small and found on the face of young girls, they are considered to be beauty spots, and in Singalese poetic

literature, reference is often made to the minute light yellow beauty spots on the face of Singalese young women. These spots so much admired by the natives, who have coined a special poetic expression for them "gomera," are in reality merely small patches of tinea flava.

Tinea Flava in Europeans.—Tinea flava may affect Europeans. The patches are yellow and similar to those found in natives, but owing to the color of the European skin they do not stand out so vividily. It must also be noted that if the patient has taken some violent exercise and the skin is perspiring the patches look red instead of yellow.

Sequelae.—In certain cases the fungus of tinea flava has, apparently, a deep, permanent, or almost permanent, disturbing action on the pigmentation processes of the skin, and the patches may remain yellowish and depigmented for a long time after the fungus has been destroyed.

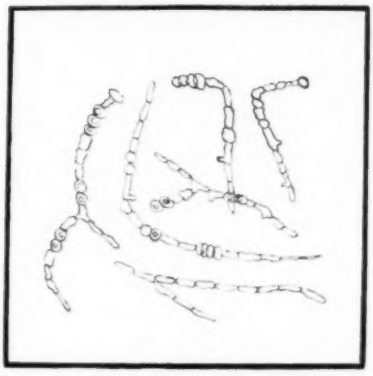

Fig. 17.—Cladosporium mansoni (hanging drop culture).

Course and Prognosis.—The disease runs a chronic course and apparently it has no tendency to spontaneous cure unless the patient goes to a temperate or cold climate. The general health is unaffected.

Diagnosis.—The condition must be differentiated from pityriasis versicolor, from cryptococcosis epidermica, tinea alba, leukoderma and circumscribed scleroderma.

I separated tinea flava from pityriasis versicolor for the following reasons: It often attacks the face; the color is yellow, often bright yellow, not dark brownish; it is cured with great difficulty, and finally the fungus in certain cases has a permanent or semipermanent disturbing action on the pigmentation of the skin, patches remaining light yellow or whitish after the parasite has been destroyed.

In cryptococcosis epidermica the patches are dirty yellow brownish and as a rule few, and the fungus does not show any mycelium. In cryptococcosis alba an enormous number of yeastlike organisms is found, without any mycelium in the lesions, and the fungus is usually

easily grown. In tinea alba the patches are not smooth, there is, as a rule, a well marked white desquamation and the fungi are of the trichophyton and epidermophyton type. In leukoderma the patches have a characteristic ivory white color and are often surrounded by a hyperpigmented border, and fungi are not found. In circumscribed scleroderma (morphea) there is the well known change in the texture of the skin, which is not pliable; moreover, fungus is not present. With regard to pinta, there is little doubt in my experience that in countries where this disease is common the term has been applied to cover also tinea flava; a certain type of so-called yellow pinta is simply tinea flava.

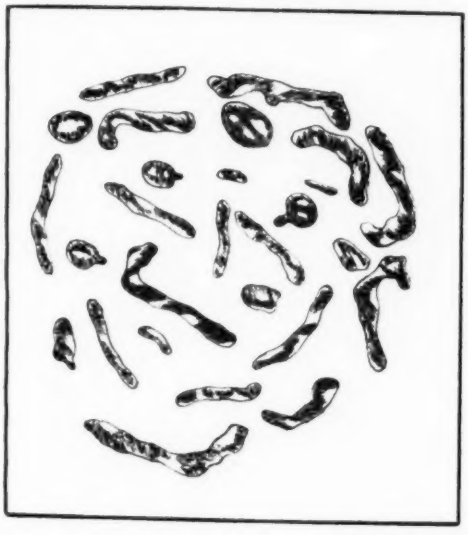

Fig. 18.—Cladosporium mansoni Castellani; preparation stained with fuchsin.

As I have already stated, in patients of the Caucasian race tinea flava often takes a peculiar reddish color when the patient is perspiring or has been exerting himself, and on superficial examination it might be mistaken for seborrhea corporis. The microscopic examination will clear the diagnosis, as fungus of the Malassezia type is not found in seborrhea.

Treatment.—The treatment is difficult. On covered parts of the body tincture of iodine or chrysarobin ointment, 2 per cent, may be used. On uncovered parts salicylic lotion 2 per cent may be applied several times a day to be followed by a salicylic sulphur ointment, such as salicylic acid 30 grains (1.95 Gm.), precipitated sulphur 30 grains (1.95 Gm.) and petrolatum 1 ounce. One must keep in mind that often the yellow patches remain for a long time after the fungus has been destroyed.

TINEA NIGRA

Tinea nigra is characterized by the presence of jet black patches caused by a fungus of the genus *Chladosporium,* which I called *Chladosporium mansoni,* in honor of Sir Patrick Manson. This fungus is fairly easily grown on sugar mediums, giving rise to black colonies. The condition is not rare in natives, and may be found also in Europeans, as shown by the following case:

Fig. 19.—Cladosporium mansoni; preparation from old culture.

A European medical man went to Burmah from Ceylon for a pleasure trip. On returning to Ceylon he noticed a roundish, slightly elevated black spot on the palm of his left hand. This spot slowly increased in size for two months, becoming the size of a halfpenny piece. A single application of formaldehyde made it disappear, but three months later it reappeared. A second application of formaldehyde cured the condition permanently. Cultures were made from the patch, before treatment, and a chladosporium was isolated identical with the fungus found in native cases.

In my experience tinea nigra occurs also in Central America.

DHOBIE ITCH
(Tinea Cruris)

I know of few Europeans who, after one or two years' residence in the tropics, have not contracted that most distressing and intensely itching condition of the inguinoscrotal region, which is known all over the East as dhobie itch, from the popular belief that it is acquired from

Fig. 20.—Tinea flava (face) and tinea nigra (neck). (From a colored sketch by A. de Silva.)

Fig. 21.—Dhobie itch (tinea cruris).

underclothing and linen that are contaminated while being washed by the dhobie (native laundryman).

What is dhobie itch? It is in reality the old eczema marginatum described by Hebra. The history of the disease is briefly as follows: About the middle of the last century Hebra in Vienna described eczema marginatum of the inguinal regions. Later, trichophyton-like fungi

were found by various observers, and the condition was considered an inguinal localization of tinea corporis, and the fungus was believed to be the same as *Trichophyton tonsurans*.

In Ceylon in 1905 I suggested that the condition should be definitely separated from tinea corporis, since I had found a fungus different from those observed in the usual types of tinea corporis; this fungus was characterized by the fact that it did not attack the hair or hair follicles, and by its colonies on maltose or dextrose being of a peculiar yellowish color, lemon-yellowish or orange-yellowish; I called it *Trichophyton cruris*.

Fig. 22.—Tinea cruris and saccharomycosis inguinalis; the white patches along each inguinal sulcus contained enormous numbers of yeastlike fungi.

In 1907 the same fungus was found by Sabouraud in France and called *Epidermophyton inguinalis*.

I sent the cultures of the Ceylon strain to both Sabouraud and Pinoy, and they concluded that the French strains and the Ceylon strains were identical. The point should be emphasized that according to the laws of nomenclature the correct name is *Epidermophyton cruris* and not *Epidermophyton inguinalis*, as when a fungus is moved from one genus into another it does not lose its specific designation. As is well known, the generic designation of an organism may be changed, but the specific designation cannot be altered.

In 1909 I found that certain cases of dhobie itch were due to a different epidermophyton (*E. rubrum*), and later I observed that a few

cases were due to a true trichophyton (*T. nodoformans*). There are, therefore, three principal species of fungi which may give rise to dhobie itch: *E. cruris, E. rubrum* and *T. nodoformans.*

1. *E. cruris,* as already stated, is characterized by its lemon-yellowish or orange-yellowish colonies.

2. *E. rubrum,* which I described in 1909, is characterized by the deep red pigmentation on dextrose agar.

3. *Trichophyton nodoformans* is characterized by the fact that the surface growth is white and powdery, while a portion of the submerged growth is often of a brick-red color, which, however, may disappear after repeated transplantations.

The botanic characters of the genera *Epidermophyton* and *Trichophyton* are given in lecture I.

It is interesting to note that each species gives rise to a slightly different type of dhobie itch.

E. cruris causes the common festooned variety identical with eczema marginatum of Hebra.

E. rubrum causes an eczematoid-like variety; the edge is less raised and is made up of numerous small close-set papules covered at times by minute bloody crusts. It has great tendency to spread from the scroto-inguinal region to any part of the body and may, in fact, begin on practically any region.

T. nodoformans induces an eruption with a thick nodular margin, and the fungus may attack the hair follicles.

As to prognosis and treatment, an apparent cure is quite easily achieved, but a true permanent cure is much more difficult. In patients who had dhobie itch in the tropics and have settled in Europe the infection may last for many years, remaining dormant in winter, but breaking out regularly every summer; the best treatment consists, in my experience, in a salicylic-sulphur ointment, precipitated sulphur 30 grains (1.95 Gm.), salicylic acid 30 grains (1.95 Gm.) and petrolatum 1 ounce; in obstinate cases chrysophanic acid may be used, 10 grains (0.65 Gm.) to 1 ounce of zinc ointment. Whitfield's ointment is also efficacious: benzoic acid 30 grains (1.95 Gm.), salicylic acid 30 grains (1.95 Gm.) and petrolatum 1 ounce.

Cases of Mixed Mycotic Infection: Tinea Cruris (Epidermophytosis Inguinalis) and Intertrigo Blastomycetica (Tinea Blastomycetica)

In many cases of epidermophytosis cruris yeastlike fungi are present; when in small numbers they do not give rise to any symptom, but when in enormous numbers they produce white patches on the

surface of the skin infected with the epidermophyton. A typical case is shown in figure 22. The patient was a colored woman with a typical epidermophytosis cruris; on both sides of each inguinal sulcus and on the external surface of the labia majora white patches were present consisting of enormous numbers of a yeastlike organism, which I cultivated.

(To be continued)

THE USE OF THE "GRENZ" (INFRA-ROENTGEN) RAYS IN DERMATOLOGIC CONDITIONS

PRELIMINARY REPORT OF CLINICAL AND BIOLOGIC OBSERVATIONS *

JOSEPH J. ELLER, M.D.
AND
GUSTAV BUCKY, M.D.
NEW YORK

That the roentgen rays constitute the most valuable single remedy in dermatologic therapy is now generally recognized. Great uses have also been found for radium and ultraviolet rays in the treatment of patients with diseases of the skin. There are now about eighty such diseases that are more or less amenable to roentgen-ray treatment. Through long years of experience and investigations, the technic has been improved to a great extent by the dermatologists, among whom may be mentioned Pusey and MacKee of America, Sabouraud and Noire of France, and Holzknecht, Schultz and Kienboek of Germany.

The penetration of the roentgen rays or gamma rays depends on their wave length. The usual wave length for treatment today ranges between 0.6 and 0.1 angstrom units. Table 1 shows diagrammatically the relationship between the wave lengths and the tensions (voltages).

In reviewing the literature, we found that Schultz, Zehden, Stern and others had experimented with soft roentgen rays, but their writings showed that the wave lengths they used must have been less than 1 angstrom unit. They reported using a quality of 1 Wehnelt degree. They used so-called "skin tubes," which were sold by various manufacturers at that time. These tubes allowed the longer waves which could not get through the ordinary glass wall to pass through, but the ray beam produced by them with the higher voltages used had a spark gap of at least 1.5 cm. between point and plate, and therefore this ray beam had its maximum intensity in a region of much shorter waves (about 0.9 angstrom units), as far as it can be computed.

An examination of figure 1 will make clear the different parts of the spectrum. In this figure, the longest waves are those used in wireless telegraphy. Then the waves become smaller in the following order: radiant heat rays, visible light rays, ultraviolet rays, Schumann rays and then roentgen and radium rays. In the past the names for the different parts of the spectrum were given in an arbitrary manner, sometimes they

---

* Read before the Section on Dermatology and Syphilology at the Seventy-Eighth Annual Session of the American Medical Association, Washington, D. C., May 20, 1927.

* From the Department of Dermatology and Syphilology, New York Post-Graduate Medical School and Hospital, service of Dr. George M. MacKee.

were named according to their influence on an organ of sense, and sometimes they were named after their discoverers; but they were never named according to their biologic effects. The order of wave lengths, as here explained has no definite border line, as the differ-

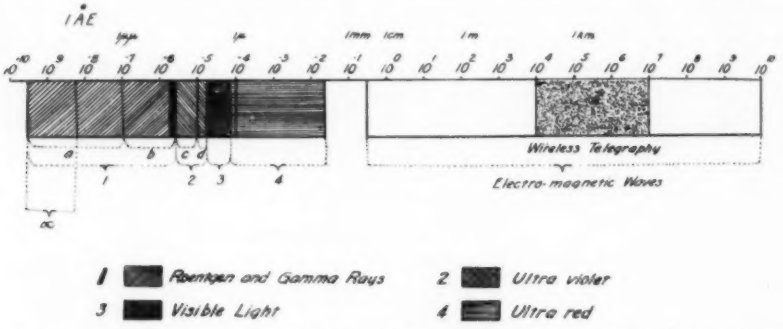

Fig. 1.—Scale of wave length after Holthusen and Baerwald (1925). *A* indicates the wave lengths studied in continuity; *b*, those confirmed by light-electric effect; *c*, Millikan-ultraviolet; *d*, hitherto known light; ∞, used in medicine.

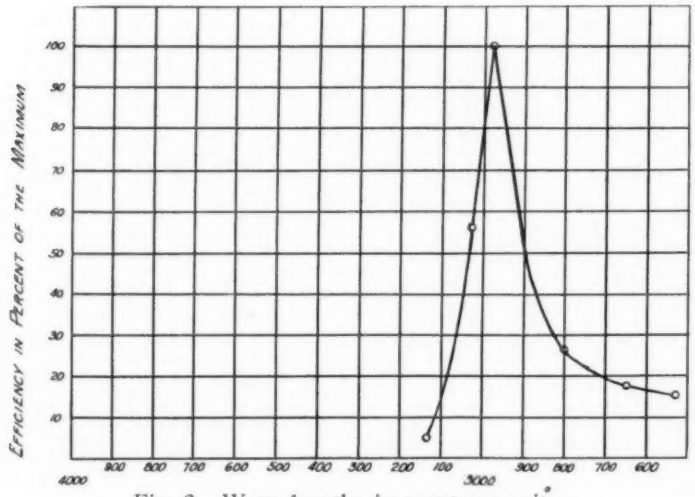

Fig. 2.—Wave lengths in angstrom units.

ent kinds merge into one another, and it is impossible to state exactly where one ends and the other begins. An interesting point here, in the physical line, is that the penetration of these rays does not follow their order in the spectrum, but is a characteristic property of certain parts of the spectrum. If one would draw a curve of the penetration in relation to the wave lengths, one would find apexes in different parts

of the spectrum, and between these apexes, the curve would be lowered at times to zero. The same holds true from a biologic standpoint, as is shown in figure 2.

Hausser and Vahle have shown in this diagram that only a small portion of the wave lengths of ultraviolet ray range produces an erythema and that all the other ultraviolet rays are really negligible in this respect. The summit of the curve lies between 2,900 and 3,000 angstrom units. This shows that the biologic action was not taken into consideration in naming the ultraviolet rays. As such a small portion of the wave lengths of the ultraviolet rays produce the erythema effect, it might be possible that in the wide range of all the rays there may be

TABLE 1.—*Relationship Between the Wave Lengths and the Tensions (After Dr. Otto Glasser)*

Tension in Kilovolt	Filter in Mm.	Half Absorption Value in Mm. Aluminum	Average Wave Lengths in Angstrom Units
200	¾ Cu + 1 mm. Al	14	0.13
130	4 Al	5	0.30
130	—	2	0.43
100	—	1	0.46
60	—	¾	0.62
10	—	0.053	1.53
6	—	0.018	2.19

Tension in Kilovolt	Minimum Wave Length in Angstrom Units	Average Wave Length	Half Absorption Value in	
			Mm. Aluminum	Mm. Water
6	2.06	2.19	0.018	0.26
8	1.54	1.80	0.032	0.46
10	1.23	1.53	0.053	0.74
12	1.00	1.44	0.065	0.91

other biologic effects peculiar to small ranges only. On the other hand, similar biologic effects are produced by wave lengths far from others in the spectrum, i. e., an erythema is produced by the roentgen rays as well as by the ultraviolet rays. This led one of us (Bucky) to investigate, during the past five years, the physical and biologic properties of a range of wave length between the ultraviolet and the roentgen rays, because of the assumption that such waves might have biologic effects which in some ways would be similar to the roentgen rays and, on the other hand, to the ultraviolet rays, and that the combination of these effects might give new possibilities. The clinical and biologic observations which will be described later confirm, more or less, the correctness of this conception.

It was found on investigation that these rays, which averaged a wave length of 2 angstrom units, had certain effects which promised to be useful in the treatment of skin diseases. Also the rapid drop of from 20 to 30 per cent in the leukocyte count, within one-half hour after exposure, followed by a rapid return to normal, even when small

areas of skin were exposed, showed us the possibility of an effect on the autonomic nervous system similar to that produced by protein sensitization. Experimental work is also being conducted along these lines by one of us (Bucky).

As was stated previously, these waves were of such length as to be situated between roentgen and ultraviolet rays, and, as the names of the different parts of the spectrum did not refer to the biologic action, it was difficult to state whether we were dealing here with roentgen

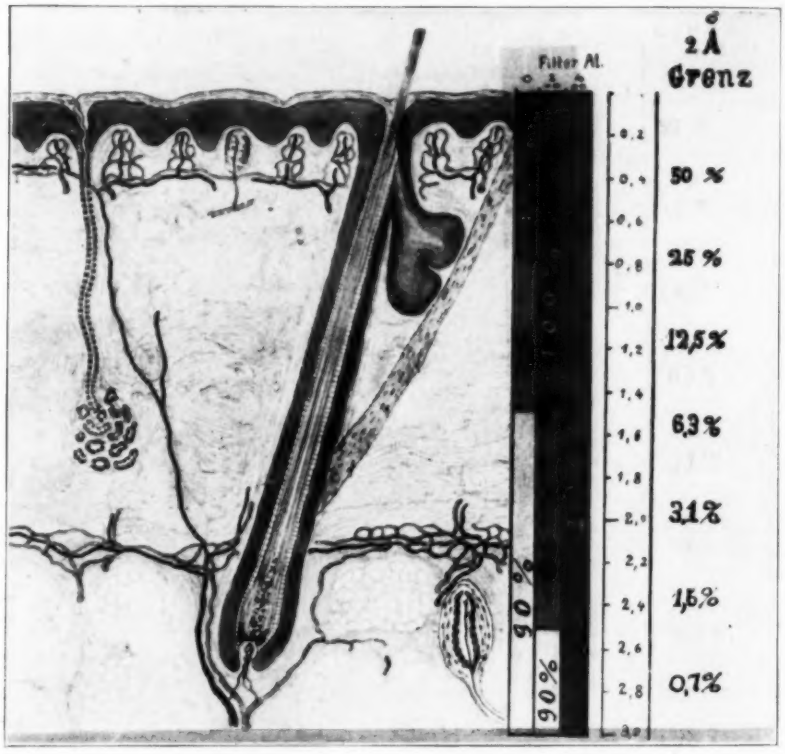

Fig. 3.—Schematic cross-section of the skin.

rays or with ultraviolet rays. Therefore, the name "grenz" (which means border line) was given to this ray. The name refers only to the biologic actions which merge into that of the roentgen rays and the ultraviolet rays. The synonym infra-roentgen rays was also adopted The latter terminology might apply to the physical property of the rays. The physical properties are shown in table 1.

An examination of this diagram shows that the penetration of the grenz rays is small and that 2 mm. of water will absorb more than 90 per cent of them. Therefore, 2 mm. of tissue will absorb almost the

same amount. We shall compare the grenz rays with the soft roentgen rays used by Schultz, Zehden, and others. From the data given by them, it can be assumed that they used tensions of about 30 kilovolts. Their ray beam was able to penetrate 1 mm. of aluminum (1 Wehnelt degree) with a sufficient intensity to produce a fluorescence of a screen which had to be bright enough for a minute comparison. But the half absorption value of 30 kilovolts is by far greater than 1 mm. of water, as this value is found in the region between 12 and 13 kilovolts. Of course there were long wave lengths in the beam, but table 2 will show a computive analysis of such a beam and of the grenz-ray beam. The

TABLE 2.—*Comparison of Approximate Percentage of Total Radiation Found in Different Wave Lengths*

Wave lengths in angstrom units	0.5 to 0.6	0.9 to 1.0	1.4 to 1.5	1.6 to 1.7	1.9 to 2.0
Oversoft roentgen rays (F. Schultz, Zehden, and others)	20%	5%	1%	1%	1%
Grenz rays	0%	0%	0%	10%	20%

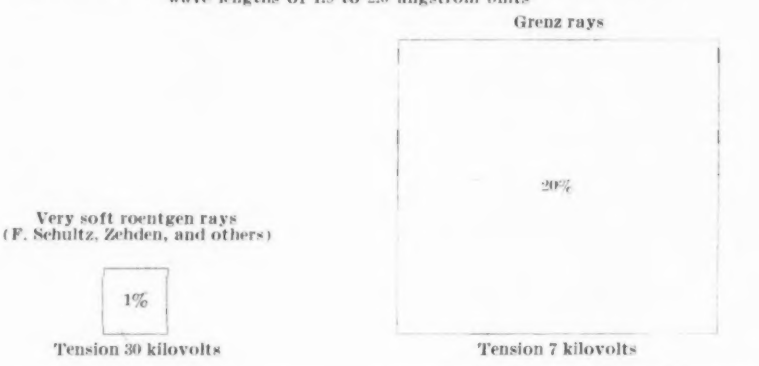
Schematic diagram of approximate percentage of total radiation between wave lengths of 1.9 to 2.0 angstrom units
Grenz rays
20%
Very soft roentgen rays
(F. Schultz, Zehden, and others)
1%
Tension 30 kilovolts
Tension 7 kilovolts

figure shows that the grenz-ray beam does not contain shorter wave lengths than 1.6 angstrom units, whereas a 30 kilovolt radiation has its maximum energy in wave lengths of from 0.5 to 0.6 angstrom units. On the other hand, the grenz-ray beam has its maximum at from 1.9 to 2 angstrom units and only about 10 per cent of the radiation is found in from 1.6 to 1.7 angstrom units. This means that really the effect of the 2 angstrom unit waves with the soft roentgen rays was a minor one and that the harder waves were the dominating ones. The percentage of the 2 angstrom unit waves in both sorts of beams is shown in the squares and becomes clear without explanation.

Tables 3 and 4 give the biologic comparisons of the grenz, ultraviolet and roentgen rays.

Figure 3 is a schematic cross-section of the skin, after Rost. At the right may be observed depth energies with the various irradiations.

Added to this is the depth energy of the grenz rays. It is shown that as far down as the first 0.8 mm. of tissue there still remains 100 per cent of the applied, unfiltered roentgen-ray energy. There must have been some absorption here, but it is difficult, even with the best measuring apparatus, to indicate the small amount that is absorbed. At a depth between 0.8 and 1.5 mm. was found 95 per cent of the incidental irradiation, and 90 per cent was found from 1.5 to a 3 mm. depth. When a 2 mm. aluminum filter was used, it was found that 100 per cent of the intensity reached a depth of about 1.5 mm., and with a 4 mm.

TABLE 3.—*Comparison Between Ultraviolet, Grenz and Roentgen Rays*

Symptoms		Ultraviolet	Grenz Rays	Roentgen Rays
Epilation		—	—	+
Erythema	Latent period	Several minutes or hours	Several minutes to 5 weeks	Several days to 3 weeks
	Duration	About 1 week	Many weeks	Some weeks
Bullae		+	+	+
Ulceration		—	+	+
Sequelae	Pigmentation	+	+	+
	Telangiectasis	—	—	+
	Atrophy	—	—	+
	Scaling	+	+	—
	Restitution	+	+	—

TABLE 4.—*Characteristic Symptoms of Grenz Rays*

Symptoms		Ultraviolet	Grenz Rays	Roentgen Rays
Erythema	Local temperature rise	+++	±	+
	Sensation	—	∓	+++
Drop of leukocytes		—	+	—

aluminum filter, 100 per cent of the in-falling rays reached a depth of 3 mm. If this is true, it can be said that with roentgen rays given through a 4 mm. aluminum filter, there is a homogeneous irradiation throughout the entire thickness of the skin. The figures obtained with the grenz rays are striking, for 50 per cent of the in-falling rays are absorbed in the first 0.4 mm. of skin, and at a depth of the sebaceous glands there is about 25 per cent of the original intensity left. In the depth of the hair papillae there remains approximately 1 per cent of the grenz rays. It may be concluded from this that with the roentgen-ray therapy used today for the treatment of skin diseases, a great many of the roentgen rays penetrated the skin without affecting it, and are absorbed in the deeper tissues. In other words, healthy tissues often were stricken unnecessarily, and in larger doses such effects on this tissue often interfered with the nourishment and reproduction of the skin.

By using the grenz rays, in which practically all of the absorption takes place in the skin and which do not injure any of the deeper tissues and vessels, we would expect not only better cosmetic results from a standpoint of reconstruction but also healthier tissues remaining after the cure of certain skin diseases. Later, we will give our observations along this line.

A special apparatus producing a low tension ranging between 5,000 and 9,000 volts is necessary. In terms of spark gaps, this voltage is equivalent to from 1.06 to 1.9 mm. between spheres of 2 cm. diameter. The tube is of the heated filament type. The handling of the apparatus is simple. Table 5 gives the values of spark gap voltages.

TABLE 5.—*Value of Spark Gap Voltages* *

Kilovolts Effective	Spheres Diameter		Distance	
	Inch	Cm.	Inc.	Millimeters
180	9.8	25	3.997	103
100	3.9	10	2.301	59
80	3.9	10	1.677	43
60	3.9	10	0.985	30
	0.784	2	1.365	35
40	0.784	2	0.590	15
20	0.784	2	0.234	6
15	0.784	2	0.156	4
10	0.784	2	0.097	2.13
9	0.784	2	0.086	1.917
8	0.784	2	0.075	1.704
7	0.784	2	0.064	1.491
6	0.784	2	0.053	1.278
5	0.784	2	0.042	1.065
4.700	0.784	2	0.0379	1

* Peak of voltage, 1.4 by effective voltage.

BIOLOGIC AND CLINICAL EFFECTS

As is shown by table 6, the grenz rays have certain biologic effects in common with the roentgen rays and the ultraviolet rays, but differ from both of them in other respects. The grenz rays are similar to the roentgen rays in that they produce an erythema and possess penetrative ability; they may also produce a latent erythema and pigmentation and have accumulation from successive treatments. They differ from the biologic effects of the roentgen rays in that after large doses of the grenz rays the erythema may appear almost instantaneously, whereas with the roentgen rays, even in large doses, it may take from three days to three weeks to appear. The penetration of the grenz rays is much less than that of the roentgen rays and with the former, an erythema dose or a double erythema dose can be given without any temporary or permanent epilation of hair; while with the roentgen rays there is first an epilation of hair and, as the dose increases, the appearance of an erythema. The sequelae of the use of the roentgen rays may be atrophy and telangiectasia, while, to date, we have not observed these results even with large doses of the grenz rays. The latter simulates the ultraviolet rays in that they produce an erythema. Neither one causes

TABLE 6.—*Biologic and Clinical Comparisons of the Grenz Rays, Roentgen Rays and Ultraviolet Rays*

Type of Ray	Average Wave Length Used in Medicine	Voltage	Penetration	Epilation	Pigmentation	Latent Period	Time of Appearance of Erythema	Local Rise in Temperature	Blistering from Large Doses	Ulceration	Accumulation	Pain	Atrophy and Telangeectasia	Drop in Leukocytes
Grenz.....	2 angstrom units	5,000 to 9,000	Slight	Yes and no	Marked	Yes and no	Few minutes to 5 weeks, depending on dose	Very slight, hardly perceptible	Vesicles the size of pin points and larger	Superficial	Slight	Slight	None observed to date	Yes
Roentgen....	0.6 to 0.1 angstrom units	70,000 to 300,000	Great	Yes	Present	Yes	Three days to 4 weeks, depending on dose	Yes	Large vesicles	Deep	Marked	Yes	Yes	None
Ultraviolet.....	2,900 to 3,000 angstrom units	None	Very small	None	Marked	None	Few minutes to several hours	Yes	Large bullae and vesicles	None	None	Yes	None	None

atrophy or telangiectasia, and they both cause pigmentation. They differ from each other in that the ultraviolet rays have much less penetration and the erythema produced is not delayed more than six hours. The erythema of the ultraviolet rays produces pain; the ultraviolet rays do not have an accummulation from successive doses. The latter rays produce all four signs of inflammation, namely, redness, swelling, heat and pain; while with the grenz rays, redness and soreness only are produced. Another similarity which these two rays have with each other is that they both may produce an erythema almost instantaneously after large doses.

For practical reasons, a standard dosage had to be adopted as a means of measurement, which at present is an arbitrary one but which has worked out satisfactorily. One unit was considered the dose that was necessary to produce a mild erythema between twelve and twenty-four hours after exposure. From now on, we will talk in terms of unit doses.

A unit dose causes a redness that subsides in about ten days, and it was found that this dose could be repeated safely every two weeks for several doses. Most of the diseases required 2 unit doses for results. The latter dose usually caused an erythema to appear within the first twelve hours after exposure; the erythema persisted for about three weeks, and this large dose could be repeated every three or four weeks without any detrimental effects. As yet, epilation has not been observed from repeated doses of 2 units. The 2 unit dose produced a marked erythema and after twelve days a feeling of soreness, but there was no swelling or perceptible local rise in temperature on the exposed area. The grenz rays in such a dose usually caused a rapid change in the lesions, had more or less of a drying effect, with scaling and crusting in the larger doses, and always caused marked pigmentation. Small doses, such as a half unit, produced pigmentation without an erythema; while the 2 and 3 unit doses caused multiple vesicles the size of pin-heads. Larger vesicles and even bullae may appear from still larger doses. Even with 3 units, we have not observed any atrophy or telangiectasia one year after exposure. This applies to those exposures in which only between 5,000 and 9,000 volts were used. One case in which 15,000 volts were used resulted in atrophy and telangiectasia, but of course this higher voltage shortened the wave length. We have no accurate data, but presume that the danger line for telangiectasia lies beyond 10,000 volts. Regardless of the fact that even with blistering doses of this ray the tissues have not shown signs of atrophy or telangiectasia after observation for more than one year, we do not wish to make positive statements regarding this, as it is generally known that atrophy or telangiectasia may not appear at times for several years after irradiation with the roentgen rays. The largest area that can be exposed at one

time conveniently with the grenz rays is about 4 inches (10 cm.) in diameter, and in order to produce this area, the tube is placed so that the distance from the target to the skin is about 3½ inches (8.8 cm.). For the treatment of an area the size of a half dollar, the tube is placed from 1½ to 2 inches (3.7 to 5 cm.) from the skin.

TABLE 7.—*Clinical Results in Diseases Treated with the Grenz Rays*

Diseases	No. of Patients	Results with Comments on Doses, etc.
1. Acne vulgaris	7	None of the patients treated locally; all received generalized exposure, and all improved about 75 per cent to date
2. Acne keloid	1	Improved considerably but not cured
3. Angioma cavernosum	3	All the lesions decreased greatly in size and color; patients still under treatment
4. Dermatophytosis	5	Rapid improvement; four patients cured; one discontinued treatment and was not doing well when last examined
5. Duhring's disease	1	At a meeting of the New York Dermatological Society, this case was presented; patient cured of a severe bullous eruption
6. Epithelioma	6	All basal cell types; all cured, leaving an excellent cosmetic result; no sign of atrophy
7. Epithelioma (multiple flat)	1	The lesions disappeared leaving former sites of lesions in good condition; case is here presented; scars are from other forms of treatment
8. Eczema	15	Includes eczema seborrhoicum and other eczemas of apparent internal origin; all were cured to date
9. Herpes zoster	1	Pain was relieved immediately with one two-unit dose
10. Keloid	6	Required large doses; all improved but much more slowly than with roentgen rays; still being treated
11. Lupus erythematosus	6	All improved, leaving healthy looking skin, but rapid recurrences or small areas of disease remained
12. Lichen planus, hyper	1	Cured, leaving soft scars, smooth and slightly, if at all, atrophic
13. Leukoplakia of tongue	2	Cured by two exposures to each lesion
14. Parapsoriasis en plaque	1	One patch was treated which flattened almost down to normal after a large dose six weeks after exposure
15. Paronychia	2	Cured
16. Psoriasis	2	Rapid recurrences; results poor
17. Pruritis ani et vulvae	5 + 3 = 8	Each case averaged four treatments for a cure; all patients relieved; for pruritis, fractional doses only must be given
18. Perléche	1	Cured in one dose
19. Rosacea	1	Cured
20. Sarcoid (Sf. F.)	1	Cured (diagnosis by microscope)
21. Scleroderma	1	Failure
22. Sycosis barbae	6	All improved; two patients cured (one chronic and one acute form)
23. Tuberculosis verrucosa cutis	1	Improvement, but still under treatment; large doses necessary
24. Tinia capitas	3	Scalp showed only mild erythema with 2 unit doses; the lesions disappeared in all three cases, but the patients did not return for examination, so it is impossible to report concerning recurrences
25. Verruca vulgaris	3	All cured with an average of about three treatments
26. Xanthelasma	1	No effect

For the past sixteen months, we have treated and have had under our observation eighty-seven patients. The cases included twenty-seven different skin diseases, the data for which are given in table 7. Some of these patients are still under treatment. It was found that from 1½ to 2 unit doses gave better and more rapid results for most diseases. Among the diseases that responded favorably to the grenz-ray therapy was acne vulgaris. These patients received generalized exposures, and all of them improved greatly without being treated

locally. One patient having acne keloid improved considerably and is still under treatment. In three cases of angioma cavernosum, the tumor decreased in size and color, and these patients are still being treated. They required large doses and responded slowly. Five patients having dermatophytosis were treated, and four were cured rapidly. One patient discontinued his treatment but was not doing well when last examined. He had an infection with a ring-worm fungus on the plantar surface of the foot. We saw only one man who had Duhring's disease. He was presented at a meeting of the New York Dermatological Society last February and had a generalized eruption of large bullae with symptoms of marked itching. These bullae appeared suddenly on what was apparently normal skin and were so extensive that the diagnosis of pemphigus was considered. A generalized exposure with the grenz ray caused practically 90 per cent of the lesions to disappear in about five weeks, and after three months the itching disappeared and the patient gained 10 pounds (4.5 Kg.). Six patients having basal cell epithelioma were treated; in the five who were cured, there was an excellent cosmetic result with no sign of atrophy; one patient had an epithelioma which involved the entire right upper eyelid. It was deeply infiltrated and felt like a button. It made the lid droop. The diagnosis of basal cell epithelioma was made by several dermatologists. After two bimonthly treatments of 2 units each to the eyelid, the infiltration decreased considerably, but the eyelashes did not fall out. The case is presented here to show the condition of the lid before and after therapy was instituted (figures 4 and 5). At no time did the patient complain of any untoward symptoms in that eyeball, although no extra protection was used. Two ophthalmologists, Dr Martin Cohen and Dr. Bernard Samuels, could not find any inflammation in the eyeball after therapy was commenced, and this area received several double erythema doses.

The next case was that of multiple flat epitheliomas in a woman (fig. 6). We have allowed one lesion to remain untreated as an example of what many other lesions looked like before therapy had been instituted. She had more than twenty multiple flat epitheliomas, some of which were sectioned and studied microscopically. Three different pathologists diagnosed the sections as basal cell epitheliomas. After treatment, all of the lesions disappeared, leaving soft pliable tissue at the sites of treatment, with no sign of atrophy or telangiectasia. The treated areas were all pigmented and wherever there were scars they were due to the previous applications of nitric acid, roentgen rays and other therapy. Fifteen patients with various types of eczemas were treated; the types included were seborrheic eczema, neurodermatitis and other eczemas of apparent internal or obscure origin; all of the patients

Fig. 4.—Epithelioma of right upper eyelid before grenz-ray therapy.

Fig. 5.—Same patient as shown in figure 4, after infra-roentgen therapy.

were cured, at least temporarily, with the use of 1 unit dose. There was one case of herpes zoster in which a 2 unit dose was used on the affected area and in which the pain was relieved almost immediately. Six patients with keloids were treated, but the lesions required large doses and responded slowly. Perhaps an improvement in our technic may promise more rapid results. In six cases of lupus erythematosus of the discoid type, it was found that the infiltration almost disappeared within five weeks after a 2 unit exposure, but there have always remained small patches the size of a pea showing active signs of the disease or else there were rapid recurrences. One patient with hypertrophic lichen planus responded favorably. After a few doses of 2 units each, the lesions disappeared rapidly, as did the itching, and soft, smooth scars remained. In two cases of leukoplakia of the tongue, the patients were cured by two exposures to each lesion. We treated one patient having parapsoriasis en plaque, experimenting only with one patch, and the lesion flattened down almost to normal six weeks after a 3 unit dose. This patient is still under treatment. Two patients with paronychia were cured. Two patients having psoriasis were treated, and the results were poor. The patches either did not respond to the treatment or when they did, recurrences were rapid. Five patients who had pruritus ani were treated, and all were cured of their itching, each patient receiving about 4 one half unit doses at ten day intervals. In three cases of pruritus vulvae, the patients were treated with the same technic and responded favorably. It was found better to give suberythema doses for pruritus. In one case each of perléche, rosacea and sarcoid, the condition was cured by this therapy. In one case of scleroderma the treatment was a complete failure. Six patients with sycosis barbae were treated; four improved and are still under treatment and two were cured. One case showed a chronic sycosis and the other one an acute sycosis. We had three patients with tinea capitis. The lesions in all three disappeared, but none of the patients has as yet returned for an examination so that we can check up on recurrences. Consequently, we cannot give any positive statements here. In passing, it was observed that the scalp showed only a mild erythema with even 2 unit doses and that there was no epilation. One patient having xanthelasma was treated, without any effect. In three cases of verruca vulgaris a cure was effected; each patient required about three treatments.

We realize that this number of cases is too small for any positive conclusions to be drawn, but the work will be continued at the skin department of the New York Post-Graduate Hospital and School, where we expect to increase the number of cases in which this treatment will be used and where we shall also continue to do experimental work on animals. Thus far, doses of various sizes have been given to the skin and eyeballs of rabbits, but it is too early to draw conclusions.

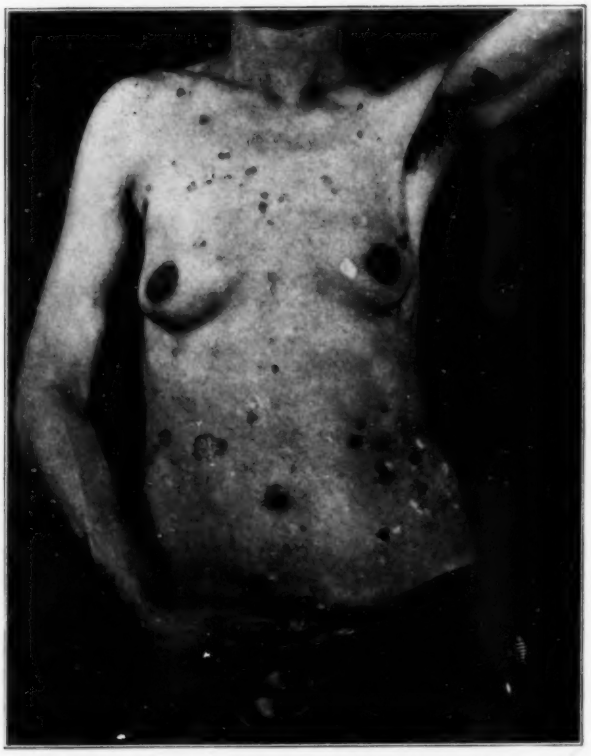

Fig. 6.—Multiple flat epitheliomas of the skin (diagnosed by the microscope) before grenz-ray therapy.

Fig. 7.—Epithelioma of the nose before grenz-ray therapy.

Perhaps some of our results may be improved by a better technic; this has not yet been worked out to any degree, for we realize that it took about twenty years' investigation and experimental work to bring the technic of roentgen rays and radium up to its present high standard.

CONCLUSIONS

1. When the grenz rays are used, an irradiation having as its maximum intensity about 2 angstrom units, is being employed.

2. A beam of rays such as this, having its peak at about 2 angstrom units, has not been used for the treatment of skin diseases before.

3. This ray has some biologic effects in common with both the roentgen rays and the ultraviolet rays; it also has biologic effects that do not result from either of the other two types.

4. Patients with various diseases of the skin responded favorably to the grenz-ray therapy. Certain diseases were not amenable to treatment with this ray.

5. Undesirable sequelae, such as atrophy and telangiectasia, have not been observed.

6. Marked erythemas may be produced with the grenz or infra-roentgen rays, without temporary or permanent epilation. Deeper seated lesions, such as epitheliomas and sarcoids, have responded to this treatment regardless of the slight penetrative power.

DISCUSSION

DR. GEORGE MILLER MACKEE, New York: The originality in this work consists of the use of a voltage of less than 10 kilovolts. Small tubes and Lindermann glass have been used before by several men, but the voltage was considerably above 10 kilovolts. The radiation consists of long roentgen-ray wave lengths (averaging, perhaps, about 2 angstrom units) obtained from a modification of the Coolidge tube. They may be called grenz rays, infra-roentgen rays, over-soft roentgen rays, 2 angstrom unit roentgen rays, etc. Undoubtedly, they are the longest roentgen rays so far employed therapeutically. The term grenz is not specific and is somewhat misleading. The rays are in the long end of the roentgen-ray spectrum instead of being well out in the borderline between the roentgen rays and the short ultraviolet rays. There is a big gap between roentgen rays of 2 angstrom units and ultraviolet rays of 1,800 angstrom units, a portion of the spectrum that has not yet been investigated, at least therapeutically. It would be interesting to observe the results that might be obtained with a roentgen tube having a quartz window.

As pointed out by Bucky and Eller, the grenz rays possess features that are characteristic of both roentgen rays and ultraviolet rays. The cutaneous reaction simulates that produced by ultraviolet radiation, while the therapeutic results are those that would naturally be expected with very long roentgen rays. Naturally, the grenz rays are not penetrating. It is to be noted that they are not efficacious in conditions that are recalcitrant to roentgen-ray therapy—keloid, for instance. They are effective in diseases that are amenable to roentgen-ray therapy, especially in superficial conditions. In the susceptible cutaneous diseases such as basal cell epithelioma, the grenz rays are effective even when the pathologic change

extends to a depth to which the rays do not penetrate. The explanation is that the first treatment destroys a few layers of pathologic cells; the second treatment destroys what was a deeper layer, and so on. The grenz rays are heterogeneous, and some of the shorter wave lengths may penetrate in sufficient amounts to effect very susceptible cells that are below the surface, especially when the treatment is of considerable length.

So far, no sequelae have been noted with quantities of rays thus far used, regardless of the severity of the reaction, provided the voltage is not higher than 10 kilovolts. Above 10 kilovolts, sequelae have been observed. Epilation does not occur with this quantity and quality. It would seem that this is a method which is both safe and valuable, but it is in the experimental stage. It is to be hoped that Drs. Bucky and Eller will continue the work and that others will undertake it, so that scientific and clinical data may be accumulated as rapidly as possible.

Dr. Edward R. Maloney, New York: During the past five months, I have had an opportunity of observing the treatment by Dr. Bucky of a number of skin conditions with this method. My results have about paralleled those of Dr. Eller. I have had encouraging results in such conditions as sycosis, tinea, kerion, a few cases of epidermophytosis, two cases of tuberculosis of the skin and several superficial epitheliomas. The experience has been too short to say much about the safety of the method, but so far I have not had any bad results. Dr. Bucky gives an erythema dose in every case and sometimes in a week another erythema dose. I believe that there will be, after thorough experimentation, a new method of treating superficial skin conditions which will be safe and which will be known to be efficacious.

Dr. Jeffrey C. Michael, Houston, Texas: One feature obtrudes itself; the apparent modesty in the choice of the name for these rays by the man who has given us the means of producing them. It seems to me that his modesty should be overridden and that when others have the opportunity of writing about this new agent they should insist on honoring him by calling them the Bucky rays.

Dr. Charles Lerner, New York: It has been my privilege to assist both Dr. Bucky and Dr. Eller in their work, and I merely wish to give my impressions of the observations. One is the rapidity with which we obtained the desired therapeutic results. In some cases we obtained a good result within ten days. One of the patients was Mrs. Lerner. She had had a vesicular eczema for years and had received all the other remedies and methods of treatment. Within five days after receiving this treatment, she developed an intense erythema with bullae, and within ten days the entire condition had cleared up. The best results, in my opinion, were obtained in epidermophytosis, basal cell epithelioma and vesicular eczemas. I was growing pessimistic on observation of the patients who had previously been treated with the usual roentgenotherapy. These cases were always somewhat obstinate, and even in such cases I would say that we obtained a 75 per cent favorable result with this method. One case of sycosis in which large and frequent doses had been given, was obstinate to treatment. I think we finally exposed the man about eight times. For the first time in one year, he said, he was completely free from sycosis for three days. We have also observed a good tonic effect on all the patients who were treated. In one patient particularly, the one with multiple epithelioma, we have noticed that there was a rapid gain in weight. The reason for this, I must confess, I do not know.

In regard to the latent erythema, as was brought out by Dr. Eller, we have observed an erythema developing within twelve hours in some instances, and in

others the patients have gone along for five weeks without any apparent effect. After that time, they developed the erythema and the desired therapeutic results. It seems to me that the essayist and also Dr. MacKee were a little too conservative. It is my opinion that in the future, so far as superficial therapy is concerned, the grenz rays will occupy a place ahead of the usual roentgen rays.

Dr. T. Caspar Gilchrist, Baltimore: I wish to congratulate Dr. Bucky and Dr. Eller on their complete scientific addition to this subject. I suppose "grenz" rays apply to all of them. I was talking to Professor Milligan about four years ago. He got his reputation by dispensing with the negative and leaving the positive exposed, as he did with the roentgen ray. It had occurred to me that this might be the cause of cancer, because of leaving an unbalanced condition. Of course, one cannot bring back that condition except by a surgical attack of the burned areas.

Dr. William A. Pusey, Chicago: I have been much impressed by this exposition of the infra-roentgen rays, or grenz rays. In trying to appraise all these methods for using roentgen-ray radiation, I have always found it well to keep in mind certain known facts. In the first place, all the therapeutic effects produced are due to rays of energy which are applied between the beta rays of one length and the highest penetrating gamma rays, and all the rays which have the power of destroying cells. They all do this only so far as they are absorbed by the cell; by taking up their energy, the cells are damaged. In all of these things, in their local effect, we come to the question of rays that the cells will stop. Of course, cells cannot be damaged, if they are not reached by the thing that will damage them. Only those rays produce effect which hit the individual cell much like a bullet, and have their energy transferred to it, much to its advantage.

I entirely agree with Dr. MacKee that one cannot account for the therapeutic results in these cases presented by Dr. Eller by indirect secondary effects, that is, by secondary effects produced in the tissues which act to destroy malignant cells and other pathologic cells that are not actually reached by the rays themselves. From the time I began to use roentgen rays—more than twenty-five years ago—I have been on the lookout for such secondary beneficial effects, as have other men. I have seen nothing to lend hope to that view. If one cannot, for example, destroy a carcinoma by the direct action of roentgen rays or radium, one cannot destroy it through indirect effects of either of these agents. The only explanation that I can see of the results in epithelioma that Dr. Eller and Dr. Bucky got, if the rays will not penetrate through the epithelioma, is that by successive exposures they destroyed the epithelioma layer by layer, each successive destruction being limited by the penetration of the rays. I think that here one is dealing with roentgen rays of very long wave lengths. They are produced by the current impinging on the target. They may have useful effects, but I am of the opinion that they will not prove as useful as roentgen rays of more penetration.

I think that it is absurd physics to say there are certain wave lengths that are longer than certain others and yet have greater penetrating qualities. It would be just as irrational to say that a fat man could get through a narrower space than a thin one. It is a physical impossibility. If these grenz rays are longer waves than ordinary roentgen rays, they are not more penetrating.

Dr. William H. Guy, Pittsburgh: Because of the apparent similarity of biologic effect and clinical results produced by the grenz rays, I should like to raise the question regarding the relationship of this new ray to the more superficially acting beta ray of radium.

DR. BUCKY, New York: I have chosen the name grenz rays for definite reasons. Physicians should realize that there are the different biologic actions with different rays. It is of secondary interest how physicists classify rays. Physical terms cannot define biologic properties. From physical properties only one cannot reason to therapeutic results. Physicians, therefore, should endow ranges of similar biologic actions with names irrespective of physical properties. Furthermore, neither biologic actions nor penetration are proportional to wave lengths. I found fundamental biologic actions with grenz rays that had never been seen with roentgen rays and ultraviolet rays. Therefore, a new signation was essential. Microscopic studies cannot give fundamental explanations. Histologic cells are too large; one has to consider the minute structure of atoms. Physicists found different electrons split off with different waves. This may be the way for later explanations.

Dr. MacKee suggested further studies on ultraviolet rays with quartz windows. But quartz cannot be used for grenz rays as calcium has an atomic weight of about 40, whereas Lindemann glass has atomic weights of about 7, 9 and 11. Quartz, therefore, absorbs grenz rays entirely. It is hard to explain the deep effect of grenz rays conclusively. But there are some important facts. The diagram of the section of the skin showed practically 100 per cent of aluminum filtered rays penetrating the skin, as one cannot measure exactly the small amount absorbed. In spite of this, we observe marked biologic effects. On the other hand, we claim that the effect depends on the absorption. Therefore, the amount of energy necessary to produce a cure is extremely small, which fact was not properly realized heretofore. Compare this almost immeasurable energy of hard rays absorbed by the skin with the 3 to 5 per cent of grenz rays absorbed underneath the skin. The absorbed subcutaneous dosage is greater with grenz rays than with roentgen rays.

Epithelioma starts on the surface and grows deeper. The cause of this condition is therefore apparently located in the upper layers, and if we destroy the superficial cause it will not spread any more. Furthermore, we can also destroy the tissue layer by layer with my method. Maximal absorption of hard radiation takes place underneath the skin. Such beams always contain minute energies of soft rays probably sufficient for superficial curative effects. Grenz rays are entirely absorbed by skin, and therefore do not affect nourishing and reconstructive tissues.

DR. ELLER, New York: A standard erythema dosage was adopted. One unit was considered the quantity of irradiation required to cause an erythema to appear between twelve and twenty-four hours after exposure of the skin on the flexure surface of an adult arm. One and 2 unit doses were required for most diseases treated so far. It was found safe to repeat the 1 unit dose at intervals of ten days. Dr. Pusey and Dr. MacKee spoke of the effect of this ray on deeper seated growths, such as epitheliomas. I believe, as they do, that the effect was mechanical in that the lesions would have an exfoliation of the upper layers after each treatment. In answer to Dr. Guy's question, I would say that the soft beta rays of radium have a deeper effect on the tissue than the grenz or borderline rays. The majority of electrons in the beta rays of radium have a velocity sufficient to cause electromagnetic vibrations of a wave length shorter than 2 angstrom units.

Abstracts from Current Literature

ADDISON'S DISEASE, SUPRARENALOPATHIES, SCLEROSIS OF THE GLANDS OF INTERNAL SECRETION; CLINICAL REPORTS AND REVIEW OF THE LITERATURE. E. G. WAKEFIELD and E. E. SMITH, Am. J. M. Sc. **174**:343 (Sept.) 1927.

A report of three cases with observations at necropsy is given. The first was clinically and pathologically a case of Addison's disease; the second was a suprarenalopathy due to an infection of the influenza type and was followed by recovery. The third case was one of hereditary pigmentation, and examination at autopsy revealed the absence of one suprarenal and sclerosis of the other as well as of the pancreas, pituitary and testes.

A general summary of the disease and literature accompanies the article.

THE NERVOUS COMPLICATIONS OF VARIOLA, VACCINIA AND VARICELLA, WITH REPORT OF CASES. R. E. WILSON and F. R. FORD, Bull. Johns Hopkins Hosp. **40**:337 (June) 1927.

Twelve cases are reported in which varicella was followed by encephalomyelitis and myelitis, which developed between four and fifteen days after the onset of the disease. Recovery was practically complete in all cases.

R. C. JAMIESON, Detroit.

ACUTE CIRCUMSCRIBED EDEMA (QUINCKE). H. H. DRYSDALE, J. A. M. A. **89**:1390 (Oct. 22) 1927.

After discussing the hypotheses regarding the etiology of the condition, the author records a case of over eighteen months' duration in which the right hand and forearm were affected. The edema followed a minor injury to the hand, and was associated with a neurosis, bordering at times on delusions of persecution. The recorded case seemed to be an expression of mental instability, and the author evidently believes that a neuropathic constitution plays a rôle in some cases of this disease.

VALUE OF INTRAVENOUS INJECTIONS OF DEXTROSE DURING RADIATION TREATMENT OF MALIGNANT DISEASE. G. E. PFAHLER and B. P. WIDMANN, J. A. M. A. **89**:1492 (Oct. 29) 1927.

It has been suggested that the intravenous injection of a hypertonic dextrose solution in conjunction with radiation therapy renders patients with cancer more susceptible to the effect of radiation. To determine the value of this suggestion the authors employed the method in 111 cases of malignancy. They did not find that the injections of dextrose improved their results. In a few cases it seemed to lessen or prevent the symptoms of radiation sickness, and it may therefore be given a trial in cases in which radiation sickness prevents further radiation therapy. They administered 10 cc. of from 30 to 50 per cent solution of dextrose before, during and after the treatment.

MENTAL ASPECT OF LEPROSY. L. L. CAZENAVETTE, J. A. M. A. **89**:1496 (Oct. 29) 1927.

Considering the chronic course and severe character of leprosy, it is not surprising that mental disturbances should be found among lepers. In about 400 lepers, the author found about 80 per cent normal mentally; the remainder presented mental abnormalities, including 3 per cent with definite psychoses. In those with definite psychoses, such as dementia praecox and senile psychoses, the course of the mental disease was so unusually rapid as to indicate that

this feature was caused by leprosy. Borderline cases (depression, apathy) are products of the disease leprosy.

BISMUTH ARSPHENAMINE SULPHONATE: CLINICAL OBSERVATIONS ON A NEW ARSPHENAMINE SYNTHETIC IN THE TREATMENT OF SYPHILIS. J. H. STOKES and S. O. CHAMBERS, J. A. M. A. **89**:1500 (Oct. 29) 1927.

This preparation is a combination of arsphenamine and bismuth; it is water soluble and is administered intramuscularly. The practical arsenic content is about 15 per cent; that of bismuth, 25 per cent. Its trypanocidal efficiency is low, but in syphilitic rabbits its ultimate sterilizing effect is high.

The drug has been used by the authors for eighteen months; 4,118 injections having been given to 204 patients. No other drugs were administered to these patients. The dose was 0.2 Gm. dissolved in 1 cc. of distilled water, with the addition of a small quantity of butyn. This dose was administered twice weekly in courses of twenty injections. Four courses were usually given.

The clinical effects may be summarized by saying that it had a slower spirillicidal effect than arsphenamine and caused a slower involution of clinical manifestations than that drug. However, the final clinical effect was equal, at least, to that of modern combined treatment. In twenty-eight cases of early syphilis, none of the patients showed abnormality of the spinal fluid at periods ranging from two to four months after treatment was begun. In five patients with late neurosyphilis the effect was practically nil, except for the relief of persistent headache.

The effect on the Wassermann reaction was excellent (reversal in all cases). The toxicity of the drug is low. It is a useful alternative when other arsphenamines have produced reactions. The drug is well borne by children. This new preparation seems to be a distinct advance in syphilotherapy.

KALA-AZAR: DEMONSTRATION OF LEISHMANIA DONOVANI IN THE SKIN AND SUBCUTANEOUS TISSUE OF PATIENTS: POSSIBLE RELATION TO THE TRANSMISSION OF THE DISEASE. J. R. CASH and C. H. HU, J. A. M. A. **89**:1576 (Nov. 5) 1927.

In suitable experimental animals the authors found large numbers of Leishman-Donovan bodies in certain cells (clasmatocytes) in the skin and subcutaneous tissue. A review of their material from necropsies demonstrated the same condition in human beings. This suggests that the disease is conveyed by a blood-sucking insect, since the cells containing the Leishman-Donovan bodies are perivascularly situated. The only cutaneous lesion occurring in kala-azar is brownish pigmentation.

TULAREMIC PERITONITIS. S. C. FULMER and M. J. KILBURY, J. A. M. A. **89**:1661 (Nov. 12) 1927.

In the reported case, tularemia developed in the patient after he had been dressing rabbits. The original lesion appeared on a finger and was accompanied by fever and adenopathy. About three months later, the patient developed ascites, and the authors cultivated *Bacterium tularense* from the ascetic fluid. This is the first time this organism has been isolated from this fluid.

FIVE YEARS APPLICATION OF THE KAHN TEST. R. L. KAHN, J. A. M. A. **89**:1841 (Nov. 26) 1927.

Kahn says that his test is relatively free from sources of error; it is rapid, simple, highly sensitive and specific and available everywhere in the world. In addition, it can be performed so as to be read in minute gradations of intensity which has considerable value in clinical work.

Both Kahn and Wassermann reactions detect the same syphilitic reagin; in the former, the reaction gives a visible end-result; in the latter, it is made

visible by a special hemolytic system which acts as an indicator. It is probable that discrepancies in these two tests are the result of technical errors rather than of inherent differences.

CEREBROSPINAL FLUID PRESSURE: CRITICAL EXAMINATION OF MENSURATION METHODS AND DESCRIPTION OF A NEW INSTRUMENT. E. S. KILGORE, J. A. M. A. **89**:1856 (Nov. 26) 1927.

Kilgore has designed a diaphragm and standpipe manometer which permits the measurement of cerebrospinal fluid pressures before any fluid is withdrawn. This overcomes the disadvantage of most instruments, which do not permit prewithdrawal readings. A number of illustrative cases are included showing variations in spinal fluid pressure dependent on the amount of fluid withdrawn and the time after such withdrawal. The errors in reading after withdrawal of fluid in cases with low pressure may be small, but it is surprisingly great in some cases with high tension.

AN INEFFECTUAL ATTEMPT TO CULTIVATE THE GLOVER ORGANISM FROM CARCINOMAS. J. A. KOLMER, M. J. HARKINS and ELI SALEEBY, J. A. M. A. **89**:1868 (Nov. 26) 1927.

In tissues from thirteen carcinomas, these investigators were unable to cultivate the organism described by Glover.

RADIUM IN ADEQUATE DOSAGE IN THE TREATMENT OF CANCER. D. QUICK, J. A. M. A. **89**:2035 (Dec. 10) 1927.

The purpose of the paper is to call attention to the fundamental fact that adequate radium dosage is necessary if therapeutic success is to be obtained. Inadequate dosage is responsible for more so-called failures of radium, in suitable cases, than all other factors combined. There is a wide range between mild erythema and real tissue destruction, and by taking advantage of this latitude, much can be accomplished. Radium is applied in three ways: (1) to the surface, (2) interstitially and (3) at a distance. The first way is applicable particularly to cutaneous lesions. Interstitial applications are effective particularly in reasonably localized growths of three dimensions. For distance effect, large quantities of radium or radon must be used. In this field, the roentgen ray competes with radium.

BLOOD VESSEL VISUALIZATION. J. B. GARNETT and S. S. GREENBAUM, J. A. M. A. **89**:2039 (Dec. 10) 1927.

The authors have demonstrated that iodized oil can be injected into the femoral artery of man with perfect safety. This allows roentgen-ray visualization of the vascular supply of the leg. Certain technical details must yet be worked out. The practical value of the method with respect to the differential diagnosis of vascular disorders and vascular capacities remains to be determined.

MICHAEL, Houston, Texas.

NEW FUNCTIONS OF THE SKIN. EDITORIAL, J. A. M. A. **89**:2196 (Dec. 24) 1927.

Biochemists have long appreciated the essential fitness of the skin for covering and protecting the body. The skin and its appendages are composed largely of keratin, a protein characterized by its insolubility in all ordinary reagents and by its failure to exhibit the usual chemical reactions. It thus is not only resistant physically but also highly inert chemically and seems strikingly well adapted to its function in the organism. This very correlation of chemical nature and physiologic behavior is so obvious that students are likely to neglect further study of possible function of the skin. The sweat glands and their

activities early drew attention to the part these structures play in excretion, and for a long time this activity of the skin was considered as an important adjunct to the work of the kidneys. This point of view is untenable, however, in the light of newer experiments (The Sweat Glands, editorial, J. A. M. A. **84**:518 [Feb. 14] 1925). The skin does play a significant part in temperature control through its ability to conduct heat and evaporate water.

Recent studies have redirected attention to the skin and emphasized the physiologic importance, heretofore unsuspected, of certain of its constituents. The production of antirachitic properties in cholesterol by ultraviolet irradiation and the protection against rickets afforded by similar treatment of the skin are now well known. The possible rationale of such physical therapy has been provided by the chemical analysis of skin by Eckstein, (J. Biol. Chem. **69**:181 [July] 1926) who has shown that approximately one fifth of the lipoid extracted from the human skin is present as free cholesterol. It seems reasonable to presume, therefore, that light treatment of the skin activates cholesterol in vivo. These implications, together with the efficacy of such treatment, indicate that the cholesterol of the skin is mobile and takes an active part in metabolism. That the skin is also of importance as an organ of storage is indicated by recent experiments on laboratory animals. Skelton (Arch. Int. Med. **40**:140 [Aug.] 1927) has studied the part played by various tissues of the cat not only in donating water to the blood after hemorrhage but also in taking up fluid after injections of various salt solutions into the blood stream. He found that, in cats which had been deprived of water for five days previous to the hemorrhage, the skin gave up about 40 per cent of the fluid—more than any other tissue examined. Again, in animals with similar treatment before the experiment, the skin took up more fluid per gram than any other tissue and accounted for approximately 14 per cent of the water held by the body when examined thirty minutes after the injection of physiologic sodium chloride solution. Evidence of a similar type of activity has been brought forward by Folin Trimble and Newman (J. Biol. Chem. **75**:263, 1927). These investigators have introduced dextrose solutions into guinea-pigs and attempted to recover the injected sugar from the various body tissues. They have shown that thirty minutes after the dextrose solution has been given, the skin contains almost as much sugar as the blood. They point out further that, although this tissue is not a storage place for dextrose and glycogen, its significance as a temporary receptacle is greater than has thus far been realized. The possible rôle of the skin in carbohydrate metabolism is thus suggested by these analyses.

The function of the skin as a protective tissue remains undisputed. However, the capacity for storage and for mobilization of water and sugar and possibly other physiologic materials is one not thus far appreciated. For a long time bone was considered as a stable, static, structural tissue with little metabolic significance; but in this case, also, our ideas have been radically altered. On the other hand, the experimental results described may possibly be harmonized with the chemical and physiologic resistance of the skin if one recalls the fact that it consists of various layers and that the part important as a protective tissue may not be the same that is concerned with water and sugar mobilization.

TREATMENT OF RINGWORM WITH THALLIUM ACETATE. J. A. M. A. **89**:2217 (Dec. 24) 1927.

The use of thallium acetate as a remedy for ringworm of the scalp has been referred to previously in THE JOURNAL (Dowling, G. B., and Kelman, R.: *Lancet* **1**:389 [Feb. 19] 1927; abstr. THE JOURNAL, May 14, p. 1605. Firth, S. J.: *Brit. M. J.* **1**:1097 [June 18] 1927; abstr. THE JOURNAL, September 3, p. 826. Curtis, F. R.: *Lancet* **1**:1290 [June 18] 1927; abstr. THE JOURNAL, September 3, p. 827. Dowling, G. B.: *Brit. M. J.* **2**:261 [Aug. 13] 1927; abstr. THE JOURNAL,

October 29, p. 1554). This salt, Tl $C_2H_2O_2$, is given by mouth, and acts by producing alopecia. The dose recommended is 8 mg. per kilogram of body weight (about one-half grain for each 10 pounds) in a single dose, given by mouth in sweetened water. The hair begins to fall out in six or eight days, epilation usually being complete by the nineteenth day. If the first dose fails, a second must not be given for some months, as cumulative toxic effects may supervene.

Dr. Maurice Drummond (*Brit. M. J.* **1**:329 [Feb. 19] 1927) says that the method has been used successfully in more than 500 cases by Cicero and Peter in ringworm cases in the schools in Mexico, and in more than 100 cases by Buschke and Langer in the Rudolf Virchow Hospital, Berlin. It is essential that the protoxide of the acetate of thallium should be used; he has employed the preparation of Kahlbaum. The Germans found that 8 mg. per kilogram of body weight was the most satisfactory dose for children of all ages. Peter, in Mexico, gave 5 mg. per kilogram for children under 5 years. Drummond found it only just sufficient in the case of the four children whom he had treated. Rapid and profuse fall of the hair occurred on the fifteenth day. The action of the drug is apparently selective, the eyebrows and fringe on the front of the head being unaffected. The drug is contraindicated in the presence of albuminuria. The greatest care is necessary in the weighing of the child and of the drug.

According to W. E. Dixon (*Proc. Roy. Soc. Med.* **20**:1197 [June] 1927) there is no other substance which acts like thallium in producing the characteristic alopecia in both men and animals. All animals, with the possible exception of the guinea-pig, when injected with thallium, lose their hair. The hair at first becomes less glossy, is easily rubbed off, and later is shed. The alopecia begins on the nape of the neck and round the ears, and the last hairs to fall are those round the chin and nose.

With thallium there are two unusual and remarkable effects associated with one drug: the production of alopecia and a definite effect on the autonomic nervous system. And as alopecia areata is frequently associated with nervous phenomena, it may not unwarrantably be suggested that the autonomic system has a great part in its causation. Thallium rubbed into the skin does not depilate, nor does it locally affect the blood vessels; it is only after absorption that this metal affects the hair. Again, in postmortem examinations of animals that have been treated with thallium, the metal is found in almost every tissue of the body and can easily be detected spectroscopically; the skin, however, retains less thallium than any other tissue. This is in marked contrast to arsenic, which is excreted by the skin, the skin always containing relatively large amounts.

J. H. Twiston Davies (*Brit. M. J.* **2**:79 [July 9] 1927) calls attention to one distinct source of danger in the therapeutic use of thallium acetate, the possible coexistence with ringworm of alopecia areata or, possibly, allied neuroses. Encouraged by the obvious stimulation of hair growth that takes place immediately before defluvium with an ordinary dose, he administered subepilating doses to some patients with alopecia areata. A boy, aged 14, with alopecia universalis, was given 6 mg. of thallium acetate per kilogram of body weight. Four days later he had pains in the knees and ankles so severe that he had to go to bed with a "cradle" over his legs for a fortnight. A man, aged 35, with alopecia areata (a recent case with rapidly extending defluvium) was given 5 mg. per kilogram (300 mg. altogether). Two days later he had "pins and needles in the muscles" from the waist downward, severe pains in the joints of the lower extremities, and loss of sensation in the legs and feet, with inability to walk and emaciation. A girl, aged 12, with alopecia areata, which had preexisted and persisted after the cure of ringworm by roentgen-ray epilation, was given 4 mg. of thallium acetate per kilogram. She had severe pains in the knees, not, however, bad enough to keep her in bed. The alopecia had proceeded to total alopecia (sparing the "fringe") within three weeks.

James Devane (*M. Press & Circular* **74**:95 [Aug. 3] 1927) reports on forty-five cases of epilation by thallium acetate. He never has seen any toxic symptoms follow. Two patients have been treated from two to fourteen years. The dosage varied between 7.5 and 8 mg. per kilogram of body weight. With the lower dosage, epilation has been secured in some cases and failed in others. With the full 8 mg. dosage, epilation followed in all cases. Three injunctions should be observed strictly. The body weight, nude, should be obtained accurately, a standard reliable preparation should be used, and the kidneys must be functioning properly. Thallium is excreted by the kidneys, and the kidneys are especially liable to injury by the toxic elements in the drug. In regard to administration, Devane has given a gentle purge the day before treatment. He has ground the required dose in tablets into a fine powder, dissolved this in a little hot water, and given no food for four hours after. The potion is tasteless; even the youngest children make no objection to taking it, and sip it like milk. The hairs become loose from about the sixth to the eighth day. On the tenth day, one can begin to pull the hairs out with a light pull separately or in bundles. From the sixteenth to the nineteenth day the whole head should be bald. Buschke recommends a zinc lime cap on the eighteenth day to secure perfect epilation. From 5 to 10 per cent tincture of iodine and 10 per cent sulphur petrolatum can be rubbed in from the beginning, and the head should be washed thoroughly once or twice. The hair grows again after four weeks; first a colorless down; this is followed by a strong growth, and finally complete regeneration after three months. Thallium is cumulative in its action. It is eliminated after two and a half months. The thallium treatment can be combined with roentgen rays. For this, 4 mg. of thallium acetate per kilogram may be combined with one-third unit skin dose and 0.5 mm. aluminum filter, the head being divided into five fields.

CALCIUM IN THE URTICARIAS. EDITORIAL, J. A. M. A. **89**:2265 (Dec. 31) 1927.

Among the various possibilities that have been held responsible for the genesis of urticarias or urticarial edemas, the indefinable factor described as altered permeability of the capillaries must be included. It is conceivable that such an alteration in the blood vessel walls may be brought about through the influence of chemical changes in the medium that normally bathes them as well as by the sudden appearance of foreign chemical substances, for example, toxins of bacterial origin, anaphylactic products, or extraneous poisons. Biologists have demonstrated on the simpler physiologic "models" of the lower forms of life that the permeability of their membranes is influenced by the relative concentration of potassium and calcium, among other agencies. Increases in the alkali elements bring about greater penetrability; decreased permeability may result from a lack of calcium. Hamburger (Ueber die Bedeutung der Kalium- und Calciumionen für das künstliche Oedem und für. Gefässweite, Biochem. Ztschr. **129**:153, 1922), for example, has shown that artificial edema may be produced by perfusing tissues with solutions deficient in calcium. It has further been argued that the important point is not the concentration of either the potassium or the calcium ion but the relation between the two. The hydrogen ion concentration has also been made responsible for changes in the exchange of fluids between the capillaries and the tissues.

This introduction will suffice to indicate why dermatologists have had their interest directed to the calcium content of the blood. It seemed reasonable to assume that at least some urticarias might find their explanation in a decrease in circulating calcium; and then, as often happens in the practice of medicine, calcium therapy was undertaken as a clinical measure before the assumption of a deficit was converted into a verity. The practice was promoted by Wright, (Brit. J. Dermat. **8**:82, 1896) who was the first to use and advocate the internal administration of calcium salts in urticaria. He based

this therapy on the fact that, in all conditions of diminished blood coagulability, there is a tendency to serous hemorrhage and urticaria. Later, he suggested that urticaria is due to a diminution in the calcium content of the blood serum. The known involvement of calcium in the phenomena of blood coagulation gave a further semblance of scientific worth to the proposed therapy.

The facts with respect to the blood in urticarias can readily be ascertained by direct experiment. Since 1924 a few investigators have applied the technic of microchemical analysis to suitable cases. The latest and most extensive studies of Greenbaum (Blood Serum Calcium in the Urticarias, Arch. Dermat. & Syph. **16**:553 [Nov.] 1927) at the Graduate School of Medicine of the University of Pennsylvania include estimations of calcium in the blood serum of sixty-three patients representing all forms of urticaria. In all but one, the results showed a normal or increased calcium. In slightly less than half the cases, coagulability of the blood was tested and a decrease was not found in any instance; rather, the tendency was toward an increase. Several cases ordinarily grouped as allergic showed an increased or normal coagulability. As Greenbaum consequently concludes, the administration of calcium salts to the majority of patients with urticaria lacks scientific basis. The practical experience of dermatologists likewise seems to give little warrant for the use of calcium salts (discussion on Greenbaum, ARCH. DERMAT. & SYPH. **16**:533 [Nov.] 1927). Without even an empiric reason for continuance of the practice, it seems to be doomed. However, it should be noted that effective results in calcium therapy may depend on the use of far larger doses than have been conventional, or on the availability of the calcium actually circulating. The possible significance of such considerations has been stressed by Andrews (Experimental Uremia, Arch. Int. Med. **40**:548 [Oct.] 1927) in relation to recent clinical attempts at calcium therapy in nephritis. He believes that they have ample experimental basis, but enormous doses will be needed, and a distinction must be drawn between transient calcium and calcium actually incorporated into the body cells.

EFFECT OF HOST IMMUNITY TO A FILTERED VIRUS (VIRUS III) ON THE GROWTH AND MALIGNANCY OF A TRANSPLANTABLE RABBIT NEOPLASM. L. PEARCE and THOMAS M. RIVERS, J. Exper. Med. **46**:65 (July) 1927.

In these animal experiments, normal and immunized rabbits were inoculated with tumor transplants. In the normal rabbits the disease developed much more severely than in the immunized animals, but this result is considered to be nonspecific and due to the difference in the resistance of the host.

EFFECT OF A FILTERABLE VIRUS (VIRUS III) ON THE GROWTH AND MALIGNANCY OF A TRANSPLANTABLE NEOPLASM OF THE RABBIT. LOUISE PEARCE and THOMAS M. RIVERS, J. Exper. Med. **46**:81 (July) 1927.

In transplanting tumors free from virus III and those inoculated with it, the resulting disease was found to be more severe with the virus—bearing transplant, though these differences were not marked nor constant. It is said that possibly the greater malignancy was induced by a decreased resistance on the part of the host associated with the reactions to the virus infection.

In four cases of vaccinia encephalomyelitis, death occurred in two cases; in the other two, recovery was almost perfect.

STUDIES IN THE BIOLOGY OF STREPTOCOCCUS: VII. ALLERGIC REACTIONS WITH STRAINS FROM ERYSIPELAS. A. R. DOCHEZ and F. A. STEVENS, J. Exper. Med. **46**:487 (Sept.) 1927.

Rabbits were found to show cutaneous allergy when immunized with culture filtrates of erysipelas hemolytic streptococcus. An early and late phase of

allergy were observed, the earliest reaction in the first phase being able to be neutralized with erysipelas immune serums.

STUDIES ON STREPTOCOCCUS BACTERIOPHAGE: I. A POWERFUL LYTIC PRINCIPLE AGAINST HEMOLYTIC STREPTOCOCCI OF ERYSIPELAS ORIGIN. G. S. SHWARTZMAN, J. Exper. Med. **46**:497 (Sept.) 1927.

While the "sludge" phage of Clark and Clark failed to produce lysis in any of the human pathogenic streptococci tested, it was found to be possible to train erysipelas streptococci to regenerate a lytic principle active against 76 per cent of strains of this group.

THE EFFECT OF SERUM UPON THE GERMICIDAL ACTION OF SOAPS. A. H. EGGERTH, J. Exper. Med. **46**:671 (Oct.) 1927.

The author concludes as follows: "The action of serum upon soaps may be regarded as a complex reaction, in which lipoids, protein, and, to a lesser extent, calcium salts take part. Their effect is due to the fact that these substances, by combining with the soaps, remove them from the field of germicidal action."

MACROGLOSSIA MYCOTICA. P. FILHO, J. Trop. Med. **30**:8 (Jan. 1) 1927.

A case is reported in which a thick white coat covered the entire tongue. Mycologic examination revealed yeast mycelia and cells which were also recovered after animal inoculation. It is believed to be a new species for which the name *Monilia aldoi* is proposed.

YAWS: ITS TREATMENT AS AN ECONOMIC PROBLEM IN AFRICA. N. A. DYCE SHARP, J. Trop. Med. **30**:21 (Jan. 15) 1927.

Stovarsol is recommended as an ideal drug for internal administration, especially for infants and children, to stamp out yaws when it occurs endemically and when intravenous therapy is not possible. A comparatively few doses of 1 grain (0.06 Gm.) each are sufficient for infants; adults require much larger doses.

SOUTH AFRICAN NOCARDIOSES. A. PIJPER and B. D. PULLINGER, J. Trop. Med. **30**:153 (June 15) 1927.

South African mycetoma is not rare but is always actinomycotic. Three cases are described due to varieties of actinomyces that are said to be new — two with yellowish and one with bright red granules.

DERMAL LEISHMANOID WITH POSITIVE FLAGELLATE CULTURE FROM PERIPHERAL BLOOD. U. N. BRAHMACHARI and A. M. DUTT, J. Trop. Med. **30**:158 (June 15) 1927.

A case is recorded of a generalized nodular eruption involving the face, trunk and extremities with pigmentation of the body developing in a case of kala-azar. The lesions of the skin were resistant to treatment, and the case appeared to be one in which visceral leishmaniasis had been passing into a dermal leishmanoid.

A NOTE ON THE WASSERMANN REACTION. H. B. NEWHAM, J. Trop. Med. **30**:171 (July 1) 1927.

A brief report of a case of a patient in whom the Wassermann reaction was strongly positive before an operation for abscess of the liver due to amebic infection is given. After four weeks the reaction became negative without syphilitic treatment.

R. C. JAMIESON, Detroit.

REPORT OF THREE CASES OF PROGRESSIVE PIGMENTARY DERMATOSIS, WITH PARTICULAR REFERENCE TO BLOOD CHOLESTEROL. J. F. SHAMBERG, Brit. J. Dermat. **39**:389 (Oct.) 1927.

Shamberg discusses the finding of an increase in the blood cholesterol in three cases of the condition described by him in 1901, under the title of progressive pigmentary dermatosis. In the three cases described by him in the article the blood cholesterol was 300, 244 and 255, respectively. A table, which accompanies the article, exhibiting the blood cholesterol content in various diseases of the skin shows that an increase of this substance is most uncommon. The significance of the increase in cholesterol in producing the cutaneous reaction that constitutes this disease is a matter for future study.

PARONYCHIA DUE TO OÖSPORIA (OIDIUM) ALBICANS. H. MACCORMAC, Brit. J. Dermat. **39**:394 (Oct.) 1927.

The writer discusses those thrush infections in which the nail, or the skin along the nail fold is involved. He comments on the rarity of the condition and briefly reviews the only three British cases hitherto recorded. He describes two of his own cases occurring in sisters aged 64, and 65, respectively. Both patients had repeated attacks of inflammation of the nail fold for many years and *Oösporia* (oidium) *albicans* was identified culturally in both cases. The writer states his belief that the infrequency of thrush infections of the skin is due to their lack of recognition, many cases being overlooked and others being diagnosed as ringworm. Two photomicrographs of stained smears from the first case accompany the article.

ICHTHYOSIS AND CANCER OF THE SKIN, WITH SPECIAL REFERENCE TO MULE-SPINNERS' CANCER. L. SAVATARD, Brit. J. Dermat. **39**:399 (Oct.) 1927.

The writer stresses the rôle of ichthyosis as an etiologic factor in carcinoma of the skin. He comments on the frequency of associated general ichthyosis in carcinoma and the association of pre-epitheliomatous keratoses with ichthyosis, and believes that the keratosis is secondary to the ichthyosis. He does not suggest that these conditions may not arise in the absence of ichthyosis. Since keratosis is a marked feature of ichthyosis, he expects to find a predisposition to carcinoma in this condition. He cites eleven cases briefly to illustrate his point and discusses the importance of ichthyosis as an etiologic factor in mule-spinners' cancer. The necessity of a more thorough and systematic examination of the skin in all patients presenting cancerous and precancerous dermatoses is pointed out.

A CASE OF PARAPSORIASIS ASSOCIATED WITH VASOMOTOR RHINITIS. J. M. H. MACLEOD, Brit. J. Dermat. **39**:405 (Oct.) 1927.

A case is reported in a pastry cook, aged 33, otherwise healthy, who presented lesions on the forearms, the patches of which became inflamed during attacks of vasomotor rhinitis. The inflammation subsided when the nasal discharge ceased. Ingestion of alcohol in any form also made the patches redder. The rhinitis was thought to be due to some form of protein sensitization.

SALVARSAN DERMATITIS; FORTY ABSCESSES; RECOVERY. J. T. INGRAM, Brit. J. Dermat. **39**:406 (Oct.) 1927.

A case of dermatitis following the injection of a total of 3.9 Gm. of neoarsphenamine in five doses in a woman, aged 32, is described. A morbiliform eruption first appeared on the trunk and limbs eight days after the last injection, and subsequently the skin became thickened, moist and weeping in the flexures, and cracked and scaling elsewhere. During this time, over forty subcutaneous abscesses developed, resembling "cold abscesses," and blood-stained pus was evacuated from each, from which *Staphylococcus aureus* was cultured. The patient received intravenous injections of sodium thiosulphate

during the attack and made an uneventful recovery. The writer feels that the early opening of the abscesses was an important factor in this patient's recovery.

WIEN, Chicago.

DERMATOLOGIC ABSTRACTS

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

COMPARISON OF 10,000 WASSERMANN AND KAHN TESTS RUN IN PARALLEL. L. D. THOMPSON and E. EBEL, J. Lab. & Clin. Med. **12**:1087 (Aug.) 1927.

In the large series of tests reported on by Thompson and Ebel the Kahn test failed to detect syphilis in 6.9 per cent of the cases. The Wassermann test failed in 9.1 per cent of the cases.

TWO CASES OF RAT-BITE FEVER. A. P. RUBINO, Pub. Health Rep. **42**:2097 (Aug. 19) 1927.

The two cases reported by Rubino occurred in persons who were infected while catching rats for experimental purposes. While there was no inoculation of animals with blood from these patients, diagnoses of rat-bite fever were made because of the intermittent relapsing fever following a rate bite, the regional lymphadenitis without suppuration, a characteristic exanthem, and response to treatment with neoarsphenamine.

CANCER OF TONGUE: RADIUM TREATMENT. A. EVANS and S. CADE, Brit. J. Surg. **15**:55 (July) 1927.

The treatment of seventeen patients with cancer of the tongue is reviewed by Evans and Cade. In each case the clinical diagnosis was confirmed by histologic examination. In sixteen of these cases the primary growth in the tongue completely disappeared after treatment. A combination of surgical excision and radium therapy appears to be the most satisfactory method.

BISMUTH TREATMENT OF SYPHILIS. D. LEES, Brit. M. J. **2**:298 (Aug. 20) 1927.

Lees avers that bismuth is an active antisyphilitic drug, more rapid in its destructive action on *Spirochaeta pallida* in vivo than mercury; it is not so rapid as the arsphenamine group of drugs in this respect. Bismuth influences the surface lesions of syphilis as rapidly as the arsphenamines, and more rapidly than mercury. The combined administration of bismuth and arsenic is more potent than either drug alone and is free from danger if given in therapeutic doses. The same holds good of arsenic and mercury. The administration of metallic bismuth in isotonic dextrose solution is remarkably free from pain and side-effects, and in this respect is better tolerated than either arsenic or mercury. Bismuth is a valuable drug in cases of syphilis in which the patients are intolerant to treatment by arsenic or mercury and in the treatment of any patient who has advanced organic disease, whether the latter is due to, or is intercurrent with, the syphilis. The intramuscular injection of an insoluble compound of bismuth gives better therapeutic results with less risk of toxic effects than other methods of administering it, such as the intravenous administration of colloidal bismuth or the intramuscular injection of the salts of bismuth. The addition of bismuth and its salts to the other available methods of treatment does not as yet justify any one in lessening the length of time over which every patient with syphilis should be treated and kept under observation. Apart from cases of intolerance to other drugs, bismuth is only an adjuvant to the treatment of syphilis and should not be used alone, even in the earliest cases of infection.

TREATMENT OF RINGWORM OF SCALP BY THALLIUM DEPILATION. A. SEASTON and C. R. WILSON, Brit. M. J. **2**:263 (Aug. 13) 1927.

Seaston and Wilson warn against the toxic effect of thallium and advise that in all cases routine examinations of the urine should be made. The drug must be of recent manufacture, and, if the solution method is used, the solution should not be kept more than a day.

STREPTOCOCCAL PITYRIASIS. H. HAXTHAUSEN, Lancet **2**:370 (Aug. 20) 1927.

Haxthausen proposed the name of pityriasis streptogenes in place of Sabouraud's "impetigo sicca" or Adamson's "chronic impetigo" because the disease is secondary to impetigo in only a small number of cases, while the majority—all those cases classed by most writers as seborrheal eczema—occur primarily as a pityriasis and preserve this appearance in their future course. Whether the streptococci found in pityriasis are impetigo streptococci the virulence of which is merely diminished, or whether they are a special type, future serologic research must decide. But, in any case, indications are that these streptococci are the cause of the disease.

HODGKIN'S DISEASE, TERMINATED BY ACUTE PULMONARY TUBERCULOSIS. HUDELO, RABUT, KAPLAN and RAGONNEAU, Bull. Soc. franç. de dermat. et syph., July, 1927, p. 485.

In two cases of malignant lymphogranulomatosis the earliest manifestations were pruritus followed by thoracic phenomena. The latter returned after remission following radiotherapy, and the cases terminated in pulmonary tuberculosis. Hodgkin's lymphogranulomatosis seems to create a soil favorable to the development of the tubercle bacillus.

DEVELOPMENT CYCLE OF TREPONEMA PALLIDUM. C. LEVADITI et al., Bull. de l'Acad. de Med. **98**:149 (July 26) 1927.

The authors offer as explanation for the absence of treponemas from the popliteal glands of rabbits inoculated with syphilis, that the treponema represents only one phase of the development cycle of the syphilitic virus. In syphilomas on the way to spontaneous cure and in chancres of treated animals, spirochetes presenting all phases of an involutional process, including the formation of argentophile granulations, were found included in the cytoplasm of the fibroblasts. These almost ultramicroscopic forms would represent the prespirochetal stage of the virus; they would be capable of insuring the preservation of the germ in the tissues during the latent periods of the disease and would constitute virus reserves that persist in spite of antisyphilitic treatments.

PINTO IN ECUADOR. S. LASSO MENESES, Bol. d. Hosp. Civil de San Juan de Dios **2**:97 (Feb.-April) 1927.

Pinto or caraate is seen in Ecuador only among the Indians in the Chillos valley in the Andes, where it appears as the "blue disease." In Colombia there is a predominance of the white and pink varieties, which attack white and black persons as well as Indians. The causative fungus also exhibits three variants: white, greenish blue and pink, representing, perhaps, different stages of the same parasite. The disease invariably tends to become chronic. The prognosis is favorable while the condition remains localized, but guarded when it spreads. Diagnosis is based on the appearance of the skin, presence of eosinophilia, weakness of certain flexor muscles, and on the result of sections and cultures. Treatment is empiric: baths, tartar emetic, copper sulphate, sulphur, mercurial ointment, chrysarobin and salicylic acid. The disease has received various names in different parts of tropical America.

ROENTGEN-RAY THERAPY OF CERVICAL GLAND TUBERCULOSIS. H. MARKUS, Deutsche Ztschr. f. Chir. **205**:209 (Sept.) 1927.

The author calls attention to the excellent results obtained by roentgen-ray therapy. He has treated 320 patients and has obtained a cure in 93.9 per cent. He warns, however, of the possibility of roentgen-ray injuries. In his experience these have developed later. They are to be attributed to too high dosage, to insufficient intervals between exposures, and to insufficient filtering. His cases were typical. The submaxillary region is depressed, the skin is pale, hard, adherent, not tender. The growth of hair is arrested. In some cases telangiectases, pigmentations and dyskeratosis develop. Among the rarer complications, he mentions aphonia, due to paralysis of the recurrent nerve, caries of the teeth, paralysis of the spinal accessory nerve and dysfunction of the parotis. He recommends small doses, filtered through 0.5 mm. of zinc. Small fields should be exposed to treatment. Nine treatments, at intervals of fourteen days, constitute a course. If further treatment seems advisable, at least three months should be allowed to elapse before it is undertaken.

EXTENT OF TEMPORARY INCREASE OF WASSERMANN REACTION IN SYPHILIS DURING TREATMENT. H. HAXTHAUSEN, Hospitalstid. **70**:616 (June 30) 1927.

Haxthausen's material comprised 340 cases in which the patient had not been previously treated. The Wassermann reaction in primary uncomplicated syphilis was temporarily increased, due, he says, to the disease itself. In complications with venereal ulcer a decrease usually appeared, which he looks on as a sign of the influence that this lesion exerts on the development of syphilis. True increase in the Wassermann reaction due to treatment was indicated with certainty only in cases of gummatous syphilis. It was more doubtful in congenital syphilis. Indications of an increased Wassermann reaction because of treatment was not seen in other cases.

SKIN TESTS WITH SUSPENSIONS OF KILLED SPIROCHAETA PALLIDA. W. POCKELS, Monatschr. f. Kinderh. **36**:501 (Sept.) 1927.

Single positive reactions to suspensions of spirochetes in 141 children, sick and well, were considered by Pockels as diagnostic of congenital syphilis. The negative spirochete reaction alone without a Wassermann test is not valuable. With negative Wassermann and negative spirochete reactions, the assumption that there has been no syphilitic infection is supported. Repeated testing of the spirochete reaction is objectionable since it may cause severe nonspecific reactions. After measles there was a positive spirochete reaction in two patients with tuberculosis and in two others, while in six nonsyphilitic patients with mental disease and fifty-five healthy children the reaction was negative. Spirochete injections gave a typical positive reaction in nine of eighteen mongoloids. The nutrient fluid used in this test material should be kept free from native albumin.

ACRODYNIA. J. M. WIGGELENDAM and T. KUIPER, Nederl. Tijdschr. v. Geneesk. **71**:250 (July 16) 1927.

Wiggelendam describes two cases of acrodynia in a brother and sister, aged 4 and 2¾ years respectively, also four cases with a number of similar manifestations, in adults, one the grandmother of the children mentioned, the others in a family living in the same village. In the children the illness, beginning with apathy, loss of appetite, weakness, and irritability, followed impetigo, which had yielded promptly to treatment. Wiggelendam mentions particularly the position assumed by the children in bed—he found them "curled up" he says, "like new-born kittens." In the course of the first month the symptoms included rhinitis, bronchitis, conjunctivitis, abdominal pains, diarrhea and cystitis. In the younger child, the exanthem on the hands and

feet, red, punctate, later vesicular and confluent, with swelling and intense itching, set in at the end of four or five weeks and spread over the extremities and trunk. The abdominal reflexes were absent; Babinski's reflex was present. There was severe sweating and rapid, weak, pulse. One child died about four weeks from the appearance of the exanthem. The older child suffered similarly, but less severely. He took food more readily and did not become emaciated; sweating did not occur. A diet rich in vitamins was prescribed. Epinephrine, 0.3 cc., was given subcutaneously on alternate days; on the other days a nonspecific bacterial autolyzate was injected intramuscularly. Under this treatment the child improved. The adults most severely affected were aged persons. In only one did the exanthem appear. The neurologic aspects of the disease are discussed at length by Kuiper.

ERYTHEMA NODOSUM AND PULMONARY TUBERCULOSIS. C. HAMBRO, Acta Tuberc. Scandinav. **3**:1, 1927.

In Hambro's material of 1,000 cases a history of erythema nodosum was absent in the 256 nontuberculous cases. Of the 744 with known or suspected tuberculosis in the lungs or pleura, sixty-two had had erythema nodosum. In forty-three of these there was tuberculosis in the family. He considers erythema nodosum of tuberculous nature, often the first response of the organism to the tuberculous infection. A relation between erythema nodosum and pleurisy seems to him probable. In twenty-seven of his cases pleurisy followed the exanthem. He believes patients should be kept under observation for a year after erythema nodosum, and he does not allow them to resume work for several months.

TUBERCULOMA OF ROOT OF TONGUE. T. TOYAMA, Kyoto Med. Soc. J. **1**:33 (July) 1927.

Toyama reports two cases of typical tuberculoma of the base of the tongue in persons, aged 54 and 49 years, respectively. Tubercle bacilli were found in the lesions.

ACANTHOSIS NIGRICAN. M. TAKUWA, Kyoto Med. Soc. J. **1**:34 (July) 1927.

Takuwa reports a case of scirrhus carcinoma of the stomach with an associated acanthosis nigricans. The skin lesion became markedly regressive following removal of the carcinoma. Basal metabolism was high, sugar tolerance was lowered, but blood sugar was increased in amount.

Society Transactions

CHICAGO DERMATOLOGICAL SOCIETY

Regular Meeting, April 20, 1927

FRANCIS EUGENE SENEAR, M.D., *Presiding*

CASE FOR DIAGNOSIS. Presented by DR. ORMSBY.

A woman, aged 32, presented an eruption of the forehead, nose, front of the cheeks and chin of three years' duration. The eruption began on the forehead and gradually spread to the other areas. The lesions were pale, brownish-red, translucent papules. The patient said that the lesions had remained without change, and that none had disappeared. She thought that in their early stage they were slightly more reddened than at present. There were not any subjective symptoms.

On examination, large numbers of punctate and slightly larger lesions were seen in the aforementioned areas. Most of them were follicular, and many of them through translucence appeared cystic.

DISCUSSION

DR. MICHELSON: I thought this was a case of disseminated follicular lupus.

DR. FOERSTER: I thought it was a follicular lupus but felt that the possibility of syringocystadenoma should be considered, owing to the peculiar translucency of the lesions, and possibly also an atypical adenoma sebaceum. It is a peculiar clinical picture and probably does not clinically represent what it would show histologically, in spite of the fact that we can see small brownish-gray infiltrated spots at the site of the lesions, making it look like a tuberculous process.

DR. MITCHELL: I was unable to come to a definite conclusion.

DR. WILE: I agree with Dr. Michelson and Dr. Foerster and have recently had a similar case in a woman. There were not so many lesions as in this case, but they were of about the same character. It did not occur to me that, because of the failure of the lesions to change and the long duration, it could be anything but syringocystadenoma. I took one lesion out, and it was a perfectly typical tuberculosis. I am inclined to think the case is one of disseminated lupus.

DR. ORMSBY: I perhaps overstressed the cystic side of the case in the history, but I stated that we had not proved the lesions to be cystic. They merely presented a translucent appearance. Lupus miliaris disseminatus faciei occurs on the face, but it is more rapid in its development, occurs in crops and undergoes resolution more rapidly than has been the case here. The lesions are probably tuberculous, and disseminated follicular lupus is a descriptive title.

BULLOUS IMPETIGO (?). Presented by DRS. OLIVER and FINNERUD.

An Italian girl, aged 2 years and 4 months, entered the Children's Memorial Hospital because of an eruption of the extremities, buttocks and scalp of two months' duration. This was preceded by an axillary abscess which ceased draining about two weeks before the eruption appeared. The lesions began on the legs as blood blisters which, if not opened by the mother, increased to the size of a dollar or larger. These, together with clear yellowish blisters, increased in number rapidly until practically the entire surface of the lower

and upper extremities and buttocks was involved. More recently, lesions had appeared in the pubic and occipital regions and in the groin. Only local preparations had been used, and one week before presentation the skin was nearly clear except for relics, but it was now as bad as ever. There had been no lesions on the face or in the mouth. The affected areas were sore but apparently without itching.

Examination showed practically total involvement of the aforementioned areas with small and large bullae, crusted plaques and moist erosions.

DISCUSSION

DR. MICHELSON: I saw this child yesterday, and I was impressed with the fact that she had an axillary abscess and that the eruption was more a pus infection than true impetigo, but today the condition of the fingers and some of the lesions that look distinctly horseshoe-shaped makes me feel that it is dermatitis herpetiformis.

DR. STILLIANS: I thought it was dermatitis herpetiformis of serpiginous type.

DR. WILE: I agree with this diagnosis.

DR. FINNERUD: I am inclined to think now that this must be a case either of dermatitis herpetiformis or of bullous multiform erythema. I think it probably is dermatitis herpetiformis, despite the fact that there is no subjective symptom other than soreness.

DR. OLIVER: This case is similar to that of a patient I presented before the society about five years ago as a case of dermatitis herpetiformis. Because of the lack of itching there was some doubt concerning the diagnosis. On looking over the literature I found that seldom are the subjective symptoms marked in children. I followed that case for two and a half years, and when the patient was taken off solution of potassium arsenite (Fowler's solution) the eruption would appear again, but on continuing the medication, it would disappear. I have the mother now as a patient, and she tells me the child is entirely well. I think this present case is one of dermatitis herpetiformis.

SCLERODERMA OF THE SCALP. Presented by DR. MITCHELL.

A nurse, aged 31, had had a lesion on the right of the vertex for four years. The lesion began in the midline and gradually spread laterally and posteriorly. The hair fell out and had not returned. At the time of onset the patient had lost weight which had since been regained. The basal metabolism had remained normal.

The lesion consisted of a fine, even band of waxy, hard scleroderma about 2.5 cm. in width from the hair line of the forehead half way back to the crown. From the hair line to the right of the bridge of the nose there was a pencil-sized band of similar scleroderma. The patient had an abscessed tooth on the upper right side which was to be extracted.

DISCUSSION

DR. HARRY R. FOERSTER: I consider this a case of scleroderma.

DR. ORMSBY: I agree with Dr. Foerster.

DR. WILE: May I recall to the minds of some of the members an article which was reported by Kingery on localized scleroderma that followed the inferior dental branch of the fifth nerve following the extraction of a tooth. This patch is practically over the preauricular branch of the fifth nerve, going right up to the scalp, and I think it belongs in that group of sclerodermas in which the distribution is due to an injury to that nerve.

DR. MITCHELL: This patient was first seen and treated by Dr. Lyle Kingery of Portland. The results of the general examination were negative; the basal metabolism was +3. The condition was progressing slowly.

CREEPING ERUPTION (?). Presented by DR. STILLIANS.

An American woman, aged 22, a laboratory technician, had had an itching eruption appearing here and there, principally about the knees, for several months. When first seen, in January, 1927, most of the lesions were flat blebs, filled with pus and with a bright red areola. After treatment, the pus formation became less marked, and it was noticed that some of the lesions had formed straight or curved lines from 1 to 3 cm. long. Attempts to capture an organism by incisions beyond the advancing end were without result, but on removing the crust from one of the lesions an open furrow was found, extremely narrow but sharply cut about 0.5 mm. wide and deep and about 1 cm. long. Most of the lesions had disappeared under ethyl acetate compresses, but several new ones had appeared. The patient had not been more than seventy-five miles south of Chicago for over a year.

DISCUSSION

DR. MITCHELL: This did not impress me as being a case of creeping eruption, and I wish to know whether the patient comes in contact with chemicals in her laboratory work. It seems to be limited to the areas in contact with a chair, and I think she might possibly sit down on something occasionally, either intentionally or accidentally.

DR. ORMSBY: We formerly thought creeping eruption was an uncommon disease, and when Dr. Kirby-Smith announced that he had seen 2,000 cases in fourteen years, it placed the disorder in a different category, at least in the south. His cases presented long irregular lines, at times numerous, that differed from the older classic Russian cases. In his cases a nematode (agamanematodum migrans) was isolated as the causative organism. This organism is much larger than the larva of the gastrophilus described in the older cases. Tamura has described an organism (Gnathostoma) found in his case which is intermediate in size between the other two. Recently Austmann has been able to render the parasite visible by applying cedar oil on the skin over the advancing end of the line. In our own cases freezing the area with carbon dioxide snow at and beyond the end of the advancing line has eradicated the disorder. In the present case a factitious element is suggested, and creeping eruption appears doubtful.

DR. MITCHELL: I have recently seen two children who just returned from Florida and who were supposed to have had creeping eruption. Both cases were combined dermatitis venenata and insect bite and cleared up promptly under ordinary soothing applications. There was no indication of real creeping eruption.

DR. STILLIANS: I tried the oil method and looked closely but could not find any black spot at all; then I dug around the end that was progressing and could not find anything. I next took the crust off one or two of the lesions and found a fine sharply outlined furrow. I thought of a factitious element at one time. When first seen the patient had large, flat, pustular lesions and then she showed me one that was beginning and that was a definite wheal. I do not believe it can be factitious, for she did not know anything about creeping eruption. The lesions are located principally about the knees and buttocks, but there are some on the arms and trunk. She is a physician's daughter and apparently normal. She has been using methyl acetate with good results.

CASE FOR DIAGNOSIS. (KAPOSI'S SARCOMA [?]). Presented by DR. F. E. SENEAR and DR. CORNBLEET (by invitation).

A machinist, aged 40, had been treated since September, 1925, for an eruption involving both legs and feet, which had been present for five years. Arsenic in various forms, mercury, roentgen ray and sodium thiosulphate intravenously had been used. Response to these various agents had been slow but definite.

In December, 1926, he developed a smooth, elevated bronze-colored, painful, small elastic nodule on the anterior surface of the left leg just below the knee. This lesion had been slowly enlarging to the size of a small walnut. Because there seemed to be fluctuation, it was incised, but it did not yield pus. Cultures made on various mediums did not show growth. A biopsy showed hyperkeratosis of the epithelium, hemorrhage, much coarse brown pigment, large numbers of blood vessels, spindle cells and many lymphocytes in the corium.

DISCUSSION

DR. ORMSBY: My clinical diagnosis would be Kaposi's sarcoma. Some years ago Dr. Lieberthal presented a case which was similar to this, and there was a good deal of discussion concerning whether it was hypertrophic lichen planus or Kaposi's sarcoma, and it proved to be sarcoma.

DR. MITCHELL: I have a patient under observation who has some lesions on the ankles similar to these, and also some around the arms and forearms. It suggests strongly Kaposi's sarcoma.

DR. MICHELSON: I think the histologic diagnosis also fits in with Kaposi's sarcoma. There are a number of spindle cells just beneath the epidermis and also some new blood vessels.

DR. HEDGE: In the case I presented six months ago, and again at the Annual Meeting, of Kaposi's sarcoma there has been marked improvement under roentgenotherapy. The infiltration is subsiding, and the pigmentation is less marked than it was in January.

DR. SENEAR: When I first saw this patient my thought was that it was a case of lichen planus hypertrophicus, but I now believe it is Kaposi's sarcoma.

EPITHELIOMA OF THE TRUNK. Presented by DR. OLIVER and DR. FINNERUD.

A Bohemian, aged 62, presented himself April 19, 1927, at the Cook County Hospital because of a palm-sized lesion of the left posterior side of the trunk, which had been present for fifteen years. This was first noticed as a dry, red spot, the size of a fingernail, which gradually enlarged to its present size, its center gradually but steadily becoming thicker.

Examination showed a scaling and crusting, sharply defined, erythematous infiltration, approximately its central third composed of a rather firm, well elevated, papillomatous and fungating mass which was bathed in a foul-smelling purulent exudate. The histologic observations will be reported at a later date.

The patient also complained of constant pain of six weeks' duration in the rectum, which was accentuated at the time of bowel movement. During this time he had had from six to twenty stools daily. Mucus was always present in the stools, but blood had never been noticed. A digital rectal examination revealed only a markedly enlarged prostate gland.

DISCUSSION

DR. HARRY R. FOERSTER: I think this is a Paget's type of epithelioma.

DR. MICHELSON: Since our cancer hospital has been opened in Minneapolis, we have had an opportunity to see in consultation a great many cases of skin cancer, and we are getting so that we hesitate to make any diagnosis except on biopsy. We have been fooled so often on things we thought were basal cell growths that were found to be squamous that we feel this is the only safe plan. We have a feeling that the time element is not important. We have seen cases with lesions that have been present for a long time and progressed slowly, and on examination we have found them to be squamous celled. We also feel that the pathologists cannot make a definite estimation of the necessary treatment but that they can classify. In this case I would insist on a biopsy from the center of the fungating mass.

Dr. Ormsby: This patient presents lesions similar to one we demonstrated last year. In our patient there were Paget-like crusting lesions on the trunk in the center of one of which a nodular and vegetating lesion developed. Microscopic examination showed this to be a prickle-cell epithelioma. The margin of this patch showed merely dyskeratotic changes. There are two types of these cases—one a basal-cell epithelioma described by Little as erythematoid epithelioma; the other presenting exudative changes with some crusting. Each may remain for years without change. The moist ones are prone to develop malignant changes in one or more of the patches in time.

Dr. Finnerud: I thought from what the patient stated about the lesion that it had always been dry. This history, together with the definite margin pointed out by Dr. Wile, would lead me to expect to find at least some of the lesions to be basal celled, although the center must be of the other type.

Note: Histologic sections show a prickle-celled epithelioma with marked dyskeratotis of the type described by Bowen. Sections from the margin were almost identical to those from the center of the lesion.

Pityriasis Rubra Pilaris. Presented by Dr. Weber.

A woman, aged 35, presented symmetrical verrucous patches with many horny plugs on the backs of the first and second fingers. The lesions had been present for six years and remained confined to these areas. There was no subjective symptom, and her general health had been good. She had not received any treatment recently.

DISCUSSION

Dr. Wile: I think it is difficult to make a definite diagnosis in this case. My first impression was that the lesions were of the nature of the hypertrophic lesions that come from trauma, such as the nodules on the fingers that come from milking. They are not typical callosities but are of the nature of soft fibromas. I think they are a reaction on the part of the skin to some trauma rather than the result of a disease.

Dr. Mitchell: I have recently seen an exact counterpart of these lesions on the finger of a seamstress. I cut off the upper part and fulgurated it and it healed without any trouble whatever. My impression is that it is a verrucous reaction to hard work.

Dr. Finnerud: My impression was that it was lupus erythematosus. I have recently seen a case with similar finger lesions plus lesions on the face.

Dr. Harry R. Foerster: I considered lupus erythematosus as one possibility, but am inclined to accept Dr. Wile's interpretation of the condition.

Dr. Ebert: I questioned the woman twice, and she said there was considerable itching. I wonder how much the trauma of scratching had to do with it.

Dr. Oliver: While it looked like lupus erythematosus, the patient said that on one ring finger there had been a hard, indurated mass which she had been able to scrub off with soap and water and with the use of her fingernail.

Dr. Weber: The two things I had in mind were a verrucous reaction to some external irritant and pityriasis rubra pilaris.

Dr. Senear: I think it was not noticed particularly that the woman had hyperkeratoses of the elbows and knees, not well developed but obviously developing. I saw the patient with Dr. Weber a week or two ago and also thought of the possibility of an atypical Devergie disease.

Mongolian Spots. Presented by Dr. Ebert.

A Mexican child, aged 2½ months, had bluish-black macules which had been present since birth and which had shown little change. The child had congenital syphilis and was brought to the Central Free Dispensary four

weeks before presentation with Parrot's paralysis of both the upper and lower extremities. She also had syphilitic skin changes on the palms and soles. The blue macules were found in the course of a routine examination. The mother said that she had given birth to seven other children, all of whom were similarly pigmented at birth, but that the spots disappeared in every case before the child was 1 year of age. The child had received four injections of neoarsphenamine, and there was marked improvement in the paralysis.

Examination revealed a well defined, bluish-black pigment of the buttocks and sacral areas, with several coin-sized, bluish macules scattered over the back. An area the size of a child's palm on each shoulder and one on the left knee were similarly involved.

DISCUSSION

DR. OLIVER: Dr. Finnerud and I showed a patient a year ago with Mongolian spots on the leg, several on the body, a well demarcated line about the ankle and one on the thigh. I saw that child about a month ago, and the spots were markedly paler.

DR. SENEAR: We had a replica of this case in the hospital a short time ago in the orthopedic department, with almost identical disturbances and appearance.

DR. FINNERUD: This was a rather extensive lesion. Last night Dr. Parmelee showed me an Indian infant with the back half of the body, the face, neck and lower extremities involved in Mongolian spots. It was an extremely extensive affair. In the nursery at the Cook County Hospital there are now four babies with Mongolian spots. It is not an uncommon condition in heavily pigmented races.

DR. ORMSBY: I think these cases are interesting when one has an opportunity to study them. Recently E. C. Balerawy studied 112 cases and found true pigment deep in the corium. The pigment cells appear in Mongolian spots between the fifth month of fetal life and birth, and they usually disappear during the third or fourth year of life.

PIGMENTATION. Presented by DR. ORMSBY.

An Italian laborer, aged 42, had a pigmentation which appeared rather suddenly on the face two years before presentation. Later it spread gradually to the other areas involved. For several months previous to its appearance the patient had been employed in the steel mills handling waste soaked in grease, and he had continued this work for a month after the appearance of the pigment. His general health was good. There was a chilblain circulation of the hands. The blood pressure was 124 systolic, 70 diastolic. The urine was normal. He had not taken any medicine, had not used local applications, and had noticed no inflammation or redness in the lesions.

On examination there was a reticular bluish-black pigmentation of the face and neck. The pigmented bands were 1 mm. wide, and the islands of normal skin approximately 5 mm. in width. Under the chin the pigmentation was diffuse. There was some extension into the scalp. The lobes of the ears were slightly roughened as well as pigmented. On the trunk the bands were less marked. On the flexor surfaces of the forms the normal lines of the skin were exaggerated in the pigmented areas, and the surface was slightly raised. There was also a moderate diffuse hyperpigmentation at the points of pressure on the waist, in the axillae and the scapulae. There was no involvement of the mucous membranes. A microscopic examination of tissue removed from a pigmented band on the neck by Dr. Ebert showed a marked deposit of brownish pigment in the reticular layer of the corium. Coarse granules were included in stellate and fusiform chromatophores, or lay free in the lymph spaces about the vessels. The larger vessels of the corium were

surrounded by a mantle of round cell infiltrate. The pigment content of the basal layer of the epidermis was normal.

DR. WILE: I think this case is interesting. It resembles cases we have seen before in which there has been vicarious pigment in various parts of the body. I think the formation of pigment coming on slowly, of peculiar character such as this, not the pigmentation of fawn color which we associate with a constitutional disease, but the blue-black pigment which tends to group itself in the upper extremities, is extremely suggestive of neoplasm. We are apt to call these cases acanthosis nigricans, but they are not that unless we have the typical velvety texture of that disease. There are cases in which vicarious pigmentation is the outstanding feature of malignant neoplasm. I venture the opinion that time will show this patient to have a malignant disorder which is producing the pigmentation he has. It is not so unlike the case in the professor from Kalamazoo College, whose case we studied here for three years and who finally died of a malignant disease.

DR. FINNERUD: When I first saw this patient, the color of the pigment was that of the case Dr. Ormsby presented on several occasions, but as I recall the pigmentation in that case, it was diffuse and limited to the forehead and cheeks, whereas it is retiform here and of more general distribution.

DR. ORMSBY: Dr. Mrasek did some of the work on the pigment, and perhaps he will tell us about it.

DR. MRASEK: I did some of the stains for Dr. Ebert. We tried the iron stain and found it was not iron; then we tried all the strengths of acid from dilute to concentrated and various strengths of alkali, but none of them affected the pigment.

DR. SENEAR: This case reminded me of the extensive distribution shown in the case of the athletic instructor who was presented by Dr. Pusey on several occasions. In that case the pigmentation has spread down the cheeks onto the neck, but the type is similar to this.

GRANULOMA INGUINALE. Presented by DR. OLIVER and DR. FINNERUD.

A negro, aged 30, had been treated in the Cook County Hospital one year previously for a soft chancre. At that time he had a circumcision. The wound never healed perfectly but retained an edematous appearance. About two months after the incision, a growth appeared in the left groin, which the patient said was like a bubo, and extended downward from that point. He went to a dispensary where he was given "shots," which he said were clear, like water, and not yellow. While he was receiving this treatment, the growth disappeared almost entirely, but it returned when the injections were stopped.

DISCUSSION

DR. STILLIANS: I think it is a granuloma inguinale.

DR. EBERT: I agree with the diagnosis.

DR. FINNERUD: We showed the patient because of the fact that in spite of the typical margin we could not demonstrate the bodies. He has not had treatment since the lesion appeared, but still the organisms are absent in smears.

DR. SENEAR: After seeing the ease with which Dr. Epstein demonstrated the organisms in Cleveland, we felt that if we could not demonstrate the organism there should be some question about the diagnosis of granuloma inguinale. From what Dr. Cole said, supported by what he had to show, about 100 per cent positive results were obtained.

DR. STILLIANS: Work was done for two years on some of the cases in Cleveland before the Donovan bodies were found.

EPIDERMOLYSIS BULLOSA. Presented by DR. FINK (by invitation).

A girl, aged 1 year, had a disorder which began on the eighth day after birth and which had been continuously present since that time. The patient was exhibited at the January meeting of this Society by Dr. Zeisler. Since that time the lips and nose had become involved, in addition to the hands and feet.

SYPHILID (FRAMBESIFORM). Presented by DR. OLIVER and DR. FINNERUD.

A Polish man, aged 35, had lesions of the face which had been present for four and one-half months, and lesions on the body which were typically frambesiform in type. There were characteristic lesions of syphilis on the neck, and at one time he had some alopecia. There was a small papule on the cheek. The Wassermann reaction was positive, and many of the lesions had disappeared under antisyphilitic treatment. Dark-field examination showed nothing but the patient had used ointment before coming to the hospital.

DISCUSSION

DR. STILLIANS: I thought the color of the lesion on the cheek looked more like tuberculosis than syphilis. There was no infiltration.

DR. EBERT: I saw this patient two weeks ago at the Cook County Hospital. At that time the lesion on the cheek, which I took to be the initial lesion of the disorder, looked much more infiltrated than today. As I understood the history, rather drastic treatment had been used by the patient himself before he knew what the trouble was. I think the lesion today is a remnant of the trauma produced by overtreatment at that time.

DR. ORMSBY: There is only one point against that diagnosis and that is the absence of enlarged glands in the neighborhood. These usually occur but not always, and that could explain the whole situation.

DR. EBERT: There is another point and that is the presence of the leukoderma colli in this man. We have another case in a man under observation at the Central Free Dispensary.

DR. FINNERUD: The lesion is healed now. It was a hard, crusted ulcer, the size of a dollar, and there was some enlargement of the regional gland.

DR. OLIVER: As Dr. Finnerud says, there never was much enlargement of the submaxillary gland. The lesion was treated energetically, and I believe that it was a primary lesion on the face, though what the source of his infection was I do not know. He shaves himself.

DR. MITCHELL: I recently saw a primary lesion on the upper gingival border in a man who was treated by three different dentists for more than a month, constantly digging and scraping at it. The man went about in complete ignorance of what he had. The possibilities of infecting dental patients were without limit. He promptly responded to treatment when a diagnosis was finally made.

DR. FINK: I recently saw a patient with a primary lesion in the posterior pharynx, a young lady who had been injured by the instrument of a dentist to whom she had gone. She could not account for the lesion in any other way.

CASE FOR DIAGNOSIS. (UNUSUAL DEGREE OF PIGMENTATION, FOLLOWING A PROBABLE SECONDARY SYPHILODERM.) Presented by DR. OLIVER and DR. FINNERUD.

An American woman, aged 30, was first seen three weeks previously because of brown spots of four weeks' duration, situated chiefly on the trunk, but to a lesser extent on the face, neck and upper extremities. She said that these lesions began as red crusted pimples and flat spots which became smooth and of their present brownish appearance within ten days. Before the appearance

of the eruption she had not taken any medicine, excepting salts occasionally for her bowels, but she had been drinking heavily of poor liquor for several weeks. Since the eruption appeared she had not taken any medicine intravenously or otherwise, with the exception of a few doses of bromoseltzer. She was married at the age of 16, had two children living and well, and had had two miscarriages. She had been separated from her husband for two months.

On entering the hospital the patient was in a semicomatose condition. The blood Wassermann reaction was negative. The skin showed numerous light to dark brown macules varying in size from that of a match head to that of a coin. There were no lesions of the mouth, palms, or elsewhere, excepting bilateral Bartholinian abscesses, cervicitis and endocervicitis. The inguinal glands were palpable, but the cervicals and epithrochlears were not. Vaginal smears showed gonococci in abundance. A second blood Wassermann test made nine days after the patient entered the hospital was reported one plus. Since that time she had received four injections of neoarsphenamine, the brown macules remaining unchanged.

DISCUSSION

Dr. Harry R. Foerster: I thought the lesions were the result of the inflammatory process due to a secondary syphilid.

Dr. Mitchell: The other possibility I considered was the thing we all talk about constantly. I asked the patient about cathartics, and she said she had been taking mineral oil but did not know anything about the contents of the oil. It occurred to me that it might be a fixed eruption due to oil containing agar with phenolphthalein.

Dr. Finnerud: The woman gave a history of taking salts and oil, and she was to have been tested out provocatively before this meeting, but the orders were not carried out at the hospital.

Dr. Oliver: We first considered a fixed eruption in this case, but the only history we obtained was the oil, and we have not tested the patient for phenolphthalein. Recently I have come to the belief that it was an inflammatory syphilid that left that amount of pigmentation. We thought the distribution of the eruption and its generalization was much more than that in a fixed eruption.

Case for Diagnosis. Presented by Dr. Stillians.

An English divorcee, aged 30, a factory worker, complained of chronic constipation, pain on defecation, bloody stools and itching of the vulva. The bowel symptoms had occurred in distinct attacks, between which she has felt well. At several times during the past eight years she had had pruritus vulvae of short duration. In the past two months this had recurred and remained, itching intensely on the right labium, less in other places.

Examination of the bowel had shown alternating hyperemic and white areas in the lower part of the rectum, while the mucosa of the upper portion was gray, and there was much blood-stained material in the contents of the bowel. A few amebas were found in the stool. Roentgen-ray examination showed inhibition of function of the gallbladder, a tender and irregularly filled small appendix or a diverticulum of the cecum. The white blood count was 9,600; red blood count 3,470,000; hemoglobin 90 per cent, and the differential count was normal. The Wassermann reaction was negative.

On the large and small vulvar lips were several flat papules and nodules, the larger ones composed of confluent small ones. The latter were round, slightly elevated, about 0.5 cm. in diameter, gray and distinctly hyperkeratotic. On attempting to scratch the surface it was found to be extremely tough. No treponemas were found. Lesions were not present in the mouth or on the skin.

DISCUSSION

DR. MITCHELL: The case impressed me as a possible hypertrophic lichen planus. This morning I saw a man with lichen planus lesions on the penis, scrotum and in the mouth. The lesions were highly characteristic and limited to those areas.

DR. FOERSTER: I thought it was hypertrophic lichen planus.

DR. ORMSBY: I agree with that diagnosis.

DR. SENEAR: I was interested in this case in connection with the one we showed with the lesions of the buccal mucosa and tongue, in which it was suggested that the lesions were probably leukoplakia because of their hypertrophic appearance. I think this lesion is as hypertrophic as those were.

DR. STILLIANS: I shall report on the histology at the next meeting if possible.

BROOKLYN DERMATOLOGICAL SOCIETY

Regular Meeting, Sept. 19, 1927

JOHN GRAHAM, M.D., *Presiding*

A CASE FOR DIAGNOSIS (BLASTOMYCOSIS?). Presented by DR. CHARGIN.

J. J., a mechanic, married, aged 67, said that he had had an eruption over the tibia since early childhood, which was markedly pruritic and induced scratching. About thirteen years before presentation, because of marked itching and "lump" formation over the tibiae, the patient had consulted a physician, who had performed a biopsy. The patient did not know the report, but the growth evidently was not a carcinoma. During the past ten weeks the involved area had ulcerated following trauma, and a fungating mass had developed which resembled blastomycosis or bromoderma. A history of ingestion of bromide was not obtainable.

DISCUSSION

DR. ABRAMOWITZ: I believe that the lesion on the right leg resembles blastomycosis more than anything else. As far as the lesion on the left leg is concerned, it is verrucous, and the patient says that he has had an itching eruption in that area. Perhaps this would be classed among what Pautrier calls giant neurodermatitis. The infiltration at one side of the verrucous lesion is perhaps more than that, and I would not be surprise if a biopsy would show a beginning carcinoma.

DR. WALZER: The interesting feature in this case is its symmetry. According to the patient, both lesions developed simultaneously. While the right one would fit into a picture of blastomycosis, the left one would not. To my mind, there is probably some internal disturbance, possibly a leukemia, as a factor in the etiology.

DR. THORNE: I agree with Dr. Abramowitz. The lesion on the right leg would have to be considered blastomycosis, unless blastomycosis is ruled out by smears and cultures.

DR. GAUVAIN: My impression is that the condition is a varicose eczema which has become verrucous.

DR. CHARGIN: I cannot see how this can be regarded as a type of eczema; there is no evidence that warrants this. The lesion is a verrucous and fungating mass raised much above the level of the skin and shows the purulent discharge observed often in cases of fungating bromoderma or blastomycosis. I cannot imagine a general disturbance being responsible for the process,

except perhaps mycosis fungoides, to which, however, there is clinically little resemblance. Nor do I think that it is due to any of the leukemic group of diseases. As regards bromoderma, the patient for a great many years has had a hypertrophic type of neurodermatitis, without any clinical inflammation, and on top of this the process, whatever it is, has been grafted. Blastomycosis is the most likely diagnosis. I shall investigate bacteriologically and pathologically and report at a later date.

MACULO-ANESTHETIC LEPROSY. Presented by DR. THRONE.

The case of C. C., a colored boy, aged 11, was reported in the ARCHIVES OF DERMATOLOGY, in the issue for March, 1927, page 347.

In August, 1927, a course of intravenous injections of antimony arsphenamine was begun, 0.06 Gm. each week and chaulmoogra oil, 5 minims (0.3 cc.), three times a day, being given. He had received the injections regularly, but he had been negligent in taking the drug. The lesion on the thigh had disappeared, leaving a depigmented area with slight atrophy in places. The interosseous spaces had filled out, and the interosseous muscles had recovered their power. The patient's general condition was remarkably improved. The case was presented to show the effect of treatment.

DISCUSSION

DR. GRAHAM: Dr. Throne should be congratulated on the result achieved.

DR. CHARGIN: Has Dr. Throne had any other experience with antimony arsphenamine in leprosy?

DR. THRONE: We have had three other patients under treatment. One patient was not under treatment long enough for us to draw any conclusions. The other two had cases of very advanced type. One patient was considered slightly improved, while the other has not improved.

PSORIASIS TREATED WITH A GOLD COMPOUND. Presented by DR. THRONE.

M. S., a woman, aged 18, Jewish, had her first attack of psoriasis at the age of 11. Three years ago, the patient had a severe attack, which was practically universal. It lasted two years. The last attack began five months previous to presentation as coin-sized lesions on the trunk, limbs and scalp. Between May 15 and July 25, she received seventeen injections of a gold compound (the gold and sodium salt of thio-aza-benzimid carboxylic acid). While receiving the gold treatment, new lesions appeared, and about the middle of July she complained of pruritus. On July 25, a blood examination showed 446 mg. of chlorides and 130.2 mg. of sugar in 100 cc. of blood. These observations were typical of the retention of the heavy metals, such as gold, arsenic, lead, bismuth and mercury. The gold injections were discontinued, and sodium thiosulphate was given intravenously three times a week. The dosage of this preparation was 0.5 Gm. in 5 cc. of freshly distilled, sterilized water. This solution was prepared at the time of the injection as old solutions of sodium thiosulphate decompose and are inert.

With the change of treatment, the pruritus was relieved, the lesions began to involute, and the blood on August 8 showed 454.3 mg. of chlorides and 92 mg. of sugar.

The object in showing this case was to bring out that in treatment with gold or with any of the heavy metals it is important to watch for retention of the metal. This retention is shown by pruritus and extension of the skin lesions which become more inflammatory. The blood at the same time shows a perverted chloride metabolism and a comparatively high sugar. At this time, it is necessary to discontinue the metal and to give the patient sodium thiosulphate.

In this case, improvement was marked after this change was made in the treatment. It is not claimed that sodium thiosulphate acted directly on the psoriatic process, but that it acted by activating the metal which had been retained and by facilitating its removal. Gold did not seem to be any more beneficial in psoriasis than arsenic.

DISCUSSION

DR. THRONE: I think it is just as important to present cases in which improvement does not occur under a specific type of medication as to present cases in which improvement takes place. The more I have seen of the use of gold in psoriasis, the more I favor arsenic.

DR. ABRAMOWITZ: I have begun to treat patients with psoriasis at the Post-Graduate Hospital with gold preparations, and in one patient the lesions became modified. In two, there was some improvement, but not enough to warrant drawing any definite conclusions.

DR. BEST: I read a report recently on the favorable results obtained with the intramuscular injections of sulpharsphenamine in psoriasis. I have tried this treatment in a few cases, and it seems to me the patients have done remarkably well, especially one who had an extensive case of generalized psoriasis with large patches of long duration and who had been subjected to about all the known forms of treatment. After five injections at weekly intervals, improvement was remarkable. In 1914, I reported ten patients treated with arsphenamine and neoarsphenamine, in which only one responded, and it was found subsequently that this one had a four plus Wassermann reaction. Can it be that the seeming therapeutic value of sulpharsphenamine lies in its sulphur radical?

DR. THRONE: We had a case of psoriasis in a woman aged 25. This was her fourth attack. Her condition cleared up after three injections of a gold preparation, but recurred after three months. Another patient, a woman aged 39, had had the disease for nine years. Before beginning treatment, her blood sugar was 131 mg. in 100 cc. of blood and the blood chlorides were lower than normal. This blood picture — a comparative large amount of sugar and small amount of chlorides — we have found constantly in persons having a retention of any of the heavy metals. If this type of patient is put on gold therapy, severe reactions are apt to develop. This woman was given sodium thiosulphate intravenously three times a week. The psoriasis is clearing up rapidly. Her external treatment consisted of a mixture of wool fat and petrolatum. We think that the thiosulphate did not directly affect the disease in this and similar cases, but that it acts by activating the metal (in this case probably arsenic), and the activated metal is thus able to exert its therapeutic action.

SECONDARY SYPHILIS. Presented by DR. GAUVAIN.

G. R., a colored laborer, aged *22*, had had an eruption on his body for three months. Examination revealed two distinct types of lesions. On the extremities there was a lesion beginning as a papulopustule, which ruptured within a week, leaving a slightly depressed scar within a small brownish-red macule. Similar lesions were sparsely scattered over the torso. Over the upper part of the back and chest, surrounding the hair follicles, was a slight infiltration which produced a flat-topped papule with a central depression at the follicular opening.

The patient denied any venereal infection since he had had gonorrhea seven years previously, although he had been exposed repeatedly up to the time this eruption developed. One year prior to presentation, an inguinal gland had suppurated and had been incised. A lesion on the penis, which was apparently a chancre, had not been discovered by the patient because of a phimosis. Laboratory reports had not been returned.

NOTE: A Wassermann reaction was later reported as four plus.

DISCUSSION

DR. WALZER: The patient has a primary lesion on the penis and marked inguinal adenopathy. There is marked congestion of the throat. I think the man has an early syphilis. In addition, he has either an iodide or bromide eruption, plus a localized lichenoid dermatitis of the chest.

DR. THRONE: I think the man has a primary lesion, an iodide eruption and a miliary lichenoid syphilid.

DR. ABRAMOWITZ: I have often noticed that in diagnosing lesions in negroes there seems to be some confusion because the lesions seem to have a slightly different appearance on a dark background. The first thing in this case that I would suggest, would be to make a microscopic examination for *Microsporon furfur*. I am not so sure about the lesions on the extremities, which resemble an iodide or bromide eruption. This diagnosis can be verified by examining the urine or serum. The patient may or may not have syphilis, but I do not believe the skin lesions are syphilitic.

DR. GAUVAIN: The pustular eruption, according to the history, was present before the man took any drugs. If it were an iodide eruption, it would disappear with the discontinuance of the drug; the man stopped taking the drug two months ago.

TUBERCULOSIS OF SOFT PALATE. Presented by DR. CHARGIN.

I O., aged 32, married, a salesman claimed to have had a tuberculous testicle from which he had recovered. He had had tuberculosis of both lungs. The eruption on the oral mucosa began seven months prior to presentation and in the course of three or four months affected the entire soft palate and the mucous membrane of the cheeks. The patient complained of pain in swallowing. Laryngoscopic examination could not be performed without general anesthesia. The affected tissues were red and edematous, the surface being granular, showing shallow, small ulcerations here and there. The diseased tissue gradually merged into the normal, but avoided the hard palate. There was some pain, especially on touching the affected mucous membrane. The microscope showed tuberculous tissue. Tubercule bacilli were present. There had been considerable loss of weight.

DISCUSSION

DR. WALZER: It seems to me that a patient with such a marked tuberculous lesion on the mucous membranes must have an advanced tuberculosis of the lungs. Another possibility is that his resistance is very low. In either case, it means treatment for general tuberculosis, not for the local lesion in the mouth. With the exception of the use of palliative and very mild mouth washes, nothing should be done to the lesions in the mouth. No method of active treatment will cure the patch, in such a patient with tubercle bacilli in the mouth, therefore why irritate this lesion? The prognosis is very bad.

DR. ABRAMOWITZ: If it were not for the fact that this man has systemic tuberculosis, I would recommend the use of gold preparations, for it seems that this drug is not well tolerated by people with pulmonary tuberculosis. Under the circumstances, I would suggest the Pfannenstill method of treatment (Lewandowsky, F.: Die Tuberculose der Haut, Berlin, Julius Springer, 1916, p. 268).

DR. SKEER: I had a patient with active tuberculosis of the lungs who developed tuberculosis of the throat. He showed a picture similar to the one in this case. He was a soldier and attributed the tuberculosis to having been gassed in the war. At a government camp he was given a mild gargle and open air treatment, and the Kromayer lamp was used on the throat. He seemed to improve at first, but soon after another ulcer developed, and he died eight months later.

DR. THRONE: The English have reported the use of sodium morrhuate for tuberculosis, and that this drug has caused a good deal of improvement. I have started some injections of this preparation into patients with different types of tuberculosis of the skin. As far as the use of gold for patients with tuberculosis is concerned, I have not been able to obtain any good results.

DR. KRIMSKY: Specialists in diseases of the nose and throat report good results in such conditions with the Finsen light. They also administer creosote by mouth, the idea being that these drugs reach the lungs and are there effective. I wonder, therefore, whether the local application of creosote to the local lesion would be of benefit.

SCHAMBERG'S PROGRESSIVE PIGMENTARY DERMATOSIS. Presented by DR. GRAHAM.

M. K., a woman, aged 29, born in United States had a lesion of one year's duration which began as brown pigmented spots on the arms, shoulders and abdomen. There were two types of lesions: cayenne pepper-like spots and large dark brown macules like a fading ecchymosis. Induration and subjective symptoms were not noted. The lesions were slowly increasing in number, and some areas particularly on the upper part of the arms were fading.

DISCUSSION

DR. ABRAMOWITZ: It seems to me that according to Schamberg's original description, the eruption, while sometimes present on distant parts of the skin, always affects the legs. Eruption on the lower extremities is not noted in this patient. The lesions are most marked on the abdomen, and there are some broad streaks that are not pigmented. There also seems to be some erythematous understructure to these lesions. The patient should be studied further, for the lesions do not appear to be any of the definite pigmentary dermatoses.

DR. SKEER: As I remember Schamberg's description, this case does not agree with it. He states that the lesions occur mainly on the extremities. This woman does not have any lesions on the legs. Also the lesions begin as pinpoint and form red elevations which become pigmented. In this case, the pigmented spots seemed as large as that of a split pea.

DR. THRONE: I agree with the diagnosis as presented.

LICHEN PLANUS OF THE MOUTH. Presented by DR. WALZER.

T. L., a man, married, a painter, aged 55, had had lesions in the mouth for five months. The tongue was somewhat scrotal, with a deep fissure in the center. Around this fissure, and especially on the tip and borders, were numerous efflorescences or papules, covered with whitish, firmly attached epithelium. These papules were scattered and arranged in rings, half rings and lines. Some had combined into patches of similar shapes.

On the inner side of the opposite cheek, at the junction of the upper and lower teeth, was a line composed of similar papules.

On the shaft of the penis were many shiny superficial points which were not distinct. Lesions of lichen planus were not seen on the body. The Wassermann test was negative.

DR. ABRAMOWITZ: A number of cases have been reported recently in which there were only lesions of the mucous membranes, and of course some one always questions the diagnosis. In this particular case, the appearance of the tip of the tongue does not look like lichen planus. There seems to be some atrophy of the tongue that we associate with syphilitic glossitis or pernicious anemia. I would like to have Dr. Walzer make a blood count on this patient before he definitely decides on lichen planus.

DR. SKEER: The two plaques on the tongue do not seem to me to be lichen planus. They may have coalesced. They look more like leukoplakia or

thrush, without the sievelike appearance. The tongue also seems to be uniformly fissured, and I can see tooth marks on the border, which would prove an inflammatory condition.

DR. WALZER: The patient's history and serology are negative for syphilis. The primary lesion is a tiny raised papule covered with a white coat. These papules are arranged in rings, lines and patches. The color is a clear white. If this man showed any lesions of the type of lichen planus on the body, no one would question the diagnosis.

E. A. GAUVAIN, M.D., Secretary.

NEW YORK ACADEMY OF MEDICINE, SECTION ON DERMATOLOGY AND SYPHILIS

Regular Meeting, Oct. 4, 1927

EDWARD R. MALONEY, M.D., *Chairman*

SARCOID. Presented by DR. L. SPIEGEL for DR. HOWARD FOX.

A. K., a German, aged 44, carpenter by occupation, and twenty-four years in this country, stated that he contracted syphilis in 1907 and received treatment at the Lenox Hill Hospital Dispensary from 1911 on, and was continuously under treatment until 1920. Provocative blood tests were negative during 1916. His blood Wassermann tests were negative sixteen times between 1917 and 1920, and his spinal fluid was negative Nov. 6, 1926. He again came under observation on Sept. 9, 1927, when he was referred for a probable "sebaceous cyst" of the back. This condition had been present for the past nine or ten months.

He presented over the lumbar region, extending onto both sides of the median line, visibly raised, infiltrated papules, nodules and irregular plaques, varying in size from a dime to a silver dollar and larger. These lesions were red to purplish in color, smooth, and felt distinctly hard and cartilaginous. There were no subjective symptoms. The scarring on back, chest, arms, etc., was probably the result of his old syphilitic infection. The blood Wassermann was negative Sept. 9, 1927. He was given a therapeutic test, some thinking the lesion a gummous infiltration. He received silver arsphenamine, dose 0.3 Gm. each on September 13, September 15, September 16, September 20, September 22, September 24, September 29, and bismuth intravenously on September 22 and September 29. The lesions had not been altered by treatment. The microscopical findings suggested both sarcoid and syphilis.

DISCUSSION

DR. POLLITZER: The case is a very remarkable one in several respects. You will recall that the patient is an old syphilitic who has been very well treated and has remained negative for a number of years and shows no evidence of active syphilis now. The lesions under discussion are located on the back in the lower dorsal and upper lumbar region, and include an area of about eight inches in diameter in which are very hard and not quite so hard masses, most of them elevated, reddish and bluish in color and irregular in shape. The natural assumption was that this was a case of syphilis with an old, sclerotic gumma showing no tendency to break down. The Wassermann test gave a negative reaction. The biopsy showed a condition which might well puzzle the dermatopathologist — a picture which would very well pass for sarcoid and quite probably almost as well for a syphilitic lesion; the histopathology of the case in the few sections studied would leave us somewhat in doubt.

In view of the possibility of this being a syphilitic lesion, the patient again received antisyphilitic treatment — I think seven injections of arsphenamine and a few of bismuth. The effect of this treatment was absolutely negative and absolutely ruled out the possibility of gumma, in fact excluded it, in my opinion, far more certainly than any evidence based on the histological examination. In point of fact, the absence of sclerosis in the histological picture was rather deceptive, for this man certainly has clinical evidence of sclerosis in his lesions; and it is for the combination of clinical and histological features — some of which belong to syphilis and some to sarcoid — that the case is peculiar, especially in view of the fact that it is not syphilis, for no syphilitic lesion would resist the treatment that this man has had.

DR. HIGHMAN: I was the pathologist. When I saw the section under the microscope, because of the changes in the arterioles and the relatively large number of plasma cells, the changes in the arterioles being of the kind seen in median syphilis, I thought the most likely diagnosis was syphilis. There were very few giant cells; the arrangement of the foci of infiltration could have been found either in syphilis or other related conditions — notably tuberculosis or leprosy. Not having had an adequate clinical picture, it seemed to me that the most likely diagnosis was syphilis. But on seeing the case tonight clinically, it does not look like syphilis, and I think Dr. Pollitzer let me down easy. However, what occurs to me as an explanation is that the man being a syphilitic, it is reasonable to believe that many of his cutaneous vessels have undergone syphilitic changes that another pathological process may have intensified. I am satisfied that the case is clinically sarcoid, and the microscopic observations corroborate such an opinion. The fact that the Wassermann test is negative and that all other evidence is against syphilis clinically, leads me to believe that this is sarcoid.

MELANOCARCINOMA. Presented by DR. TRAUB.

J. V., an Italian laborer, aged 65, first noticed a small growth on his left cheek four years ago. Drug store treatment was applied. The family physician was consulted later, who burned the lesion with either an electric needle or cautery knife. Some years later the patient applied to the General Memorial Hospital where he received one or several doses of roentgen ray or radium. He stated that since the latter application the lesion had increased in size, rather than diminished. When presented there was a dime-sized, vegetating, black lesion on the cheek with enlarged glands in the neck.

DISCUSSION

DR. WISE: There is not much question about the diagnosis; we all accept that. The interesting points are with reference to the prognosis and treatment. The prognosis in melanocarcinoma of the cheek is better than in that of the extremities. I think the best treatment consists of electrocoagulation; we are at least sure of shutting off the lymphatics and blood vessels in the removal of the growth.

DR. POLLITZER: This case, in which to my mind the prognosis is very bad, for the man has already an infected gland under the jaw — illustrates what I have so frequently dwelt upon before this section: the importance of not trifling with these lesions. This poor man had been treated by various inadequate means and over a considerable period of time before he saw some one who realized the gravity of the case. The man has probably lost his chance of life by the delay and the simply irritative treatment to which he has been subjected. A pigmented mole that is undergoing any proliferative change should be radically removed at once.

DR. HIGHMAN: I agree that electrocoagulation is the best method of treatment in this case.

DR. CANNON: I do not believe that any treatment will effect a cure in the case under discussion, for I think that when such a lesion has reappeared one or more times after removal it is evidence that the disease must be fairly well disseminated. Some melanomas metastasize regardless of the method employed. Five years ago, with the desiccating needle, I removed a melanoma about three inches in diameter, a section showing a malignant growth, yet the man is still living and perfectly well apparently. I believe there must be degrees of malignancy in these melanotic growths.

DR. RULISON: I have had two cases. In one the lesion was in the lumbar region and was removed a year ago—a melanocarcinoma. The man was in the clinic a short time ago, apparently well. The other case had a lesion on the cheek in almost exactly the position of this one, but about three times as large. It was removed with the high frequency current and has healed. There was a small gland under the jaw, as this man presents. It was given a heavy dose of roentgen rays and has shown no change since.

DR. TRAUB: There were two reasons for presenting this case: one, for suggestions as to treatment, and the other reason was to compare this patient with the Kaposi sarcoma also shown this evening. The latter case had a somewhat similar lesion on the nose, which responded remarkably well to a single roentgen-ray treatment given three or four weeks ago. Metastasis to the nodes of the neck and elsewhere has undoubtedly already taken place in this case; therefore, the prognosis is extremely unfavorable. Certainly the best local treatment, if any is attempted, would be the removal by the endotherm knife.

URTICARIA PIGMENTOSA. ADULT TYPE. Presented by DR. BECHET.

I. R., a man, aged 28, stated that the eruption began two years previously. It consisted of a large number of perfectly flat, yellowish brown lesions, most numerous on the trunk. When vigorously rubbed they became red and wheal like. Treatment had proved unavailing.

DISCUSSION

DR. HOWARD FOX: I agree with the diagnosis, and consider this a classic case of the adult type of urticaria pigmentosa. While the lesions in both children and adults vary in size, in different cases, they seem to be of fairly uniform size in a given case. In the adult cases the lesions have invariably been small in the cases I have studied, and have shown an admixture of red as opposed to the pure yellowish brown spots seen in children. My experience with roentgen-ray treatment has been unsatisfactory. While the eruption in one case entirely disappeared for about six months, it returned at the end of that time.

SEBORRHEIC DERMATITIS, FOLLICULAR TYPE. Presented by DR. ELLER.

C. K., a man, aged 22, from the Post-Graduate Skin Clinic, stated that his body was entirely free from any lesions up to one year ago, when the eruption appeared on the upper abdomen and gradually spread over the trunk. Different ointments had been used without any relief, and without changing the character of the lesions. Only occasionally were there any subjective symptoms, and those only of a slight itching character. The eruptions consisted of tiny follicular papules of a brownish color. There was no grouping. In places the lesions were pustular and there was some exfoliation.

DISCUSSION

DR. PARKHURST (Toledo, Ohio): The appearance on the anterior portion of the trunk of the large palm sized patch of papules, pustules and erythema was rather confusing at first; but considering the brownish appearance of the various

scapular lesions and the pronounced pityriasis of the skin, I think I would agree with the diagnosis of seborrheic eczema of the follicular type, as described by Dr. Trimble.

DR. HOWARD FOX: I agree with the diagnosis of seborrheic eczema of the follicular type. It is the type of eruption about which Dr. Trimble wrote. A lichen scrofulosorum, which was suggested by one of the members in an informal discussion, could hardly be considered, as the follicular elevations, while discrete, were situated upon a reddish yellow diffuse background. The entire eruption also occupies the favorite sites of seborrheic eczema.

DR. SHARLIT: I treated this patient some years ago. He had a severe seborrheic dermatitis of the face and scalp. The lesions now present on his chest were not in evidence then.

DR. ABRAMOWITZ: I am inclined to agree with the diagnosis. The hand shows lichenified lesions and abrasions, probably produced by scratching because of itching.

SARCOMA-KAPOSI. Presented by DR. TRAUB.

V. R., an Italian laborer, aged 65, first visited the clinic in the early part of September. At that time he presented a rather large purplish ulcerative lesion on his left ali nasi. This lesion measured 2 cm. in diameter and was elevated above the skin surface about 1½ cm. The duration was between three and four months. Pea-sized, pigmented, vascular lesions were present on his right ear, lip, and on the dorsal surface of the fingers of the left hand. The lesion on the nose was treated on Sept. 8, 1927, by a roentgen-ray dose of 4 units. The Wassermann reaction was negative. Biopsy: a small lesion was removed from the right ear, and the laboratory reported the structure of an hemangioma with some pigmentation, fibroblasts and endothelial cells.

DISCUSSION

DR. HIGHMAN: I very much dislike the type of discussion this case forces on me, for it is relatively unimportant what things are called so long as the conception of them is clear and distinct in our minds. If we designate a case under the classic term of Kaposi's multiple, benign, hemorrhagic sarcoma, we ought to restrict our application to what the original writers meant by it. They did not mean what is seen in this patient. The classical picture is usually confined to the lower extremities, and gradually as the years go by the lesions — which are, in effect, under the microscope angiofibrosarcoma — are disseminated over the body skin and in the viscera. Unquestionably this man has lesions which look like sarcoma, indeed vascular sarcoma, but not Kaposi's form. What their histology is I could not tell from looking at the patient; but if there is one thing that is characteristic of Kaposi's type of multiple sarcomatosis it is that it does not occur on the face except after a prolonged course, and then but rarely. I think this is an ordinary angiosarcoma, and by that I mean something rarer than Kaposi's sarcoma. It does not, from the very nature and localization of the lesion, come under the heading of the disease given in the diagnosis.

DR. HOWARD FOX: I would like to ask Dr. Wise about the case he published, showing lesions on the face. Did these occur early or late in the course of the disease?

DR. WISE: The patient referred to by Dr. Fox, whose case I had published as an example of an early eruption of sarcoma of Kaposi, presented a small lesion on the nose and lobe of one ear; but he also had lesions on the feet, which were more characteristic of the disease.

DR. ABRAMOWITZ: I would like to know how the lesions responded to treatment with the roentgen ray.

DR. TRAUB: This patient was presented for comparison with the case of melanocarcinoma of the cheek, and because of the unusual location of the lesions. I have seen about eight cases of Kaposi's sarcoma in which with the exception of one case there was no doubt as to the diagnosis. In the doubtful case the majority of the tumors were on the upper extremities, face, ears, and mouth. According to our standard text book this condition is most common on the lower extremities, but may exceptionally begin in any location. Gilchrist and Ketron reported such a case presenting only six lesions on the nose and cheeks. My point is that this case does not fit in as a case of melanocarcinoma; pigmented or so-called melanotic sarcoma is more than an ordinary hemangioma, and therefore must be classified as a multiple idiopathic hemorrhagic sarcoma, Kaposi type.

The tumors all appeared at the same time three or four months ago. Only the one on the nose developed rapidly and suggested the possibility of malignancy, which was not confirmed by the examination of a section of a tumor removed from the right ear. The pathologist's diagnosis was hemangioma, but he stated that Kaposi's sarcoma could not be ruled out from the slide.

DERMATITIS HERPETIFORMIS. Presented by DR. CANNON.

Mrs. L. M., a woman, aged 37, born in the United States, a janitress, was admitted to the Vanderbilt clinic, September 28, complaining of a severely itching eruption recurring at intervals for six years. Sometimes she would be entirely free for two months at a time. The lesions usually began as vesicles, and on scratching red lumps developed. The woman had no sores in the mouth and felt perfectly well physically. She had been married eleven years, and had never been pregnant. Her husband was living and well.

Examination revealed on the neck, upper extremities and trunk (most marked on the upper extremities and especially flexor aspects of the arms) erythematous, raised, excoriated, some blood crusted, papules and plaques. Some of the plaques were several inches in diameter. Distinct vesicles were present. Beneath the arms there were annular and circinate shaped lesions with clear brownish colored centers and elevated urticaria-like margins. There was grouping, pigmentation and scarring. The teeth and gums were in bad condition. There were several urticarial papules and marked dermographism.

DERMATITIS HERPETIFORMIS IN A CHILD. Presented by DR. WISE.

Th. M., a girl, aged 5, from the Post-Graduate Skin Clinic, presented an eruption of vesicles and bullae, which first appeared five months before presentation. It affected the skin of the face, trunk, neck and extremities, and resembled at first glance a widespread impetigo. Examination revealed extensive areas of small and large vesicles arranged in groups, affecting chiefly the thighs, upper extremities and buttocks, with scattered groups on the trunk, neck and face. Pigmentation was evident in the larger areas of vesiculation, most pronounced on the thighs. Itching was severe. Regression and new formation of vesicles were apparent on various parts of the body. Under Fowler's solution administered by mouth, and small doses of roentgen-ray treatment, unfiltered, a very distinct improvement took place within two weeks.

DISCUSSION

DR. HOWARD FOX: It would be interesting to have the blood count in these two cases. A high eosinophil count is said to be found frequently in Duhring's disease, though it was only present in approximately half of the cases reported by Engman and Mook.

DR. CHARGIN: I should like to suggest that in these doubtful cases of dermatitis herpetiformis the iodide test (Jadassohn) be more generally performed, but more especially in typical cases of the disease in order that we may evaluate the test.

In regard to Dr. Wise's case, I should like to say that we have had two similar cases under observation in Dr. Goldenberg's service at Mount Sinai; one for a period of many months who has had the trouble with very short remissions for several years. The lesions were identical with those in Dr. Wise's case. We were not convinced that we were dealing with dermatitis herpetiformis, but inclined rather to a persistent type of multiform erythema. The iodide test in both cases proved negative. Jadassohn called attention to this test in 1912. He observed that the skin of patients suffering from dermatitis herpetiformis was sensitive to the iodides. The internal administration of the iodides as well as local application of potassium iodide in vaseline (from 10 to 50 per cent) caused the appearance of new crops of lesions. This phenomenon does not occur in pemphigus. Numerous observers have confirmed the test.

TRICHOPHYTIDE. Presented by DR. BECHET.

J. C., a white boy, aged 5, had had a very extensive tinea tonsurans, which was demonstrated by microscopic examination. Six weeks previously the entire area had been epilated with the roentgen ray. Ten days later a severe pustular eruption appeared over the epilated areas, followed a week later by a generalized follicular miliary scaly eruption all over the body. Scrapings were negative.

DISCUSSION

DR. ANDREWS: I think we all agree with the diagnosis. It is a rather interesting case on account of the illustrative history. The trichophytide appeared upon the body before the hair fell out, which almost excludes the spreading of the infection by the falling hair. Most of these cases follow a pustular type of ringworm. There was no kerion in this case. At the time of the roentgen-ray treatment it was simply a scaling patch, but about five days after the treatment it became pustular and nodular, and abscesses appeared over the entire scalp. Apparently the radiation had irritated the inflammation, and absorption from this deep seated lesion is supposed to have produced the trichophytide. This explanation seems affirmed by the fact that the eruption was noticed upon the body four days after the appearance of the pustular lesions on the scalp. A blood culture at this time would have been interesting, and it also would be informative to know what type of ringworm was found microscopically in the scalp hair.

DR. TRAUB: I epilated this case. On the average four to eight patients a week are treated. Statistics have not been kept, but I should say that about 2 per cent of the cases develop some sort of eruption on the body as it is apparently not uncommon for it to follow a roentgen-ray treatment. The eruption usually appears quite regularly eight to ten days after treatment.

DR. BECHET: Low, in the *British Journal of Dermatology and Syphilis*, October, 1924, calls attention to the frequency with which a pustular eruption occurs on the scalp after roentgen-ray epilation. He believes that this might be due to the rubbing in of the fungus on loose hair; the patient being sensitized to the fungus infection. The association of trichophytides with such a pustular infection as in the case under discussion might lend weight to such a theory.

DR. CANNON: I have noticed infections of the scalp and trichophytide of the body on several occasions following epilation of the scalp with roentgen-ray, and I have always thought it was due to lack of proper preparation previous to the treatment. I should like to know what treatment, if any, the patient had before the roentgen ray was given. Our cases are usually treated for ten days prior to epilation with daily scrubbings of soap and water, with applications of ammoniated mercury or dilute tincture of iodine. We also have our patients wear clean white skull caps. We continue our precautions for cleanliness for some time after the roentgen-ray treatment.

ACTINOMYCOSIS. Presented by DR. HOPKINS.

Mrs. M. H., aged 35, born in the United States, housewife, was admitted to the clinic October 3. About June 28, her right lower tooth was extracted, and three weeks following this she developed a swelling in the lower jaw bone. On August 24 an incision was made inside of the jaw. The incision gave no relief, and subsequently a swelling at the outer angle of the jaw was incised from without. Another incision was made the following week. None of the incisions apparently cured the condition, and one week before presentation a further incision was made and a diagnosis of actinomycosis was made by microscopical examination. Examination revealed below the angle of the right jaw an area 8 by 8 cm. showing puckered skin caused by numerous incisions. There was some general induration in the scars. Over the angle of the jaw, there was an erythematous, fluctuating, tumor, about one inch square.

DISCUSSION

DR. THORNLEY: I interrogated the patient in an attempt to determine the origin of the disease. Apparently it was not derived from cattle.

DR. HOPKINS: I was interested in the possible source of infection; whether it was similar to one showed by Dr. Feit last year. In both instances the disease followed the extraction of a carious tooth. In neither case could we find any evidence of infection from cattle.

CASE FOR DIAGNOSIS (LICHEN PLANUS HYPERTROPHICUS?). Presented by DR. BECHET.

S. F., a white woman, aged 45, stated that she had had lesions on both lower legs for four years. They consisted of multiple nodules, forming sheets of eruption on both lower legs. They were raised and very hard, and of a violaceous color. The few bullae present were the result of treatment. The lesions did not itch.

DISCUSSION

DR. CHARGIN: On superficial inspection the case certainly suggests lichen planus, but on more careful examination this diagnosis can be definitely ruled out. If this were lichen planus it would be of the hypertrophic variety, and one would expect solid lesions, more or less flat, bluish in color, scaly, and there would be considerable itching. None of these are present in the case. The lesions are globular, they are not bluish, they can be readily pressed out, there is little itching, and there is an associated marked lymphoedema of the entire leg. We are evidently dealing with dilated lymph vessels, not lichen planus.

DR. CANNON: I think this is a condition not infrequently seen in people with large swollen legs due to lymphatic or venous stasis plus local infection. The only other condition with which it is confused is sarcoma, but the many cases I have examined pathologically have shown only the presence of fibrous tissue.

PERIFOLLICULITIS CAPITIS ABSCENDENS ET SUFFODIENS (DISSECTING PERIFOLLICULITIS OF SCALP). Presented by DR. ELLER.

The patient, J. L., was a man, aged 23, from the Post-Graduate Skin Clinic. The lesions on the head first appeared as red papules about seven months before presentation. The lesions gradually enlarged and became chestnut shaped, numbering about fourteen to eighteen, and varying in size from a lentil to a medium sized chestnut. Exudation then appeared. This was at first serous and later purulent. Two months before presentation the larger lesions were incised, followed by improvement. The small lesions continued to enlarge. There was considerable scarring and alopecia. A smear taken

from a few of the abscesses was completely negative. A culture of the pus showed staphylococcus aureus. A biopsy had been made but the sections had not been prepared at the time of presentation.

DISCUSSION

DR. WISE: The most striking thing about the case is its remarkable similarity to several other examples of the condition recently seen in this city. Another interesting feature is that the histology usually reveals a granuloma of tuberculous structure, with characteristic giant cells and epithelial cells. Tubercle bacilli have not been demonstrated.

DR. HOWARD FOX: The name for this unusual affection, while long and cumbersome, describes it quite accurately. To show how extremely chronic the disease may be, I would like to mention a case seen recently in consultation with neurologists, who thought there might be some relationship to a brain tumor, symptoms of which were present. The disease had existed for nearly forty years, and although it appeared to have run its course some activity had been noticed within the past year.

DR. HIGHMAN: I can never repeat the name of this disease, and I do not even know what all these words mean. It is a silly designation. The patient has subcutaneous abscesses. The old name is acne conglobata. A patient like this has a peculiarly lowered resistance to an ordinary microorganism found on the skin to which most of us are immune. I have had an opportunity to study such a case within the past year, which had been syndicated, as it were. The boy was 19, and had a condition which started as ordinary boils which gradually spread and finally, on his scalp, the picture presented by this patient developed. In addition similar lesions developed in the axillae, groins and elsewhere as undermined abscesses all over his body. He looked about ready to die. He was feeble, pale, and his hemoglobin was 55 per cent, with a corresponding reduction of erythrocytes. A few red blood cells were found in the urine, which did not come from the bladder but examination did not show where they came from. The question was, why this color? The first thing I did, considering that he had about seventy abscesses, was to call in a surgeon. He opened the abscesses and converted them into saucer shaped ulcers. Healing then began. On the basis of this and the fact that we were dealing with something that made the boy abnormal, we thought we might raise his resistance by giving him transfusions. This seemed to fulfil predictions. Where necessary, excision of the affected skin was made. Thus practically the entire perineum was excised. A lot of laboratory work was done, and as usual the biochemical investigations yielded nothing that had any bearing on the case. The bacteriological examinations showed staphylococci. Tuberculosis was excluded by all conventional methods, including guinea-pig inoculations. The blood count showed leukocytosis. On one occasion in anaerobic culture a streptococcus was isolated. The boy was placed on the Minot diet. Common sense therapy and the surgeon deserve credit for the patient's improvement. He is now comparatively well, and the few lesions which develop can be controlled.

BAZIN'S DISEASE CURED WITH SODIUM AUROTHIOSULPHATE INJECTIONS. Presented by DR. ABRAMOWITZ.

Miss A. G. H., was a private patient referred by Dr. A. Goldman. She was a postoffice clerk. She was born in this country, and had an older brother and a younger sister who had died of pulmonary tuberculosis. The patient had always been in perfect health with the exception of whooping cough and a tuberculous adenitis as a child. Three years prior to presentation, ulcerations began to develop on her legs, which healed in about a month under local ichthyol treatment, but broke out about two months later. This time the ulcerations lasted five months, although she received about six injections of

arsphenamine. She remained well until the following fall. Then and for the following two years numerous typical ulcerations (Bazin's disease) were present on the legs, together with a five-cent piece sized ulceration on the left forearm. These remained, in spite of continuous ultraviolet-ray applications, with about ten injections of arsphenamine. Photographs taken March 28, 1927, showed the condition of the legs before the institution of gold therapy. She received fourteen injections of sodium aurothiosulphate of 50 to 100 milligrams, bi-weekly. During this time she also received moderate exposures of ultraviolet ray. Improvement was noted after the second week, more than 75 per cent of the lesions having healed when she left for the country. A photograph taken June 24 showed all lesions healed. They have remained so since then. About six Wassermann tests taken were all negative. A biopsy taken of one of the lesions on the leg had been reported at the Vanderbilt clinic as typical of Bazin's disease.

DISCUSSION

DR. HOPKINS: That is a very brilliant and convincing result. We treated the patient during the greater part of last winter and we tried everything excepting gold. There might have been slight temporary improvement, but the course was generally down hill. I am sure that anyone who has followed her case will be convinced of the efficacy of gold therapy in this instance.

DR. WISE: Dr. Abramowitz has been very fortunate with the gold treatment in certain cases he exhibited here. Last year he presented a case of lupus vulgaris showing very good results. I would like to know if he has had any favorable results in sarcoid. I believe that further experience with the gold preparations will prove it to be of value not only in the treatment of lupus erythematosus, but also in lupus vulgaris, sarcoid of Boeck, papulonecrotic tuberculid, and other diseases included in the tuberculous group.

DR. BECHET: In answer to Dr. Wise's question, I wish to state that I have at present under treatment a woman with lupus erythematosus on the face and sarcoid on the back and arms. Dr. Wise may remember the case, as she was seen by him in consultation. She has had five or six injections of gold and sodium thiosulphate, and both types of lesions have improved considerably.

I presented a case of extensive erythema induratum before the Section last June; there were also many lesions of papulo-necrotic tuberculid on the hands and forearms. All of the lesions disappeared entirely in six weeks with gold injections, in spite of the fact that they had been present for many years and had resisted much other treatment, including some thirty injections of tuberculin. I saw this patient a few days ago, and she is still entirely well.

DR. CHARGIN: I think that Dr. Abramowitz has been exceedingly fortunate with the gold preparations in Bazin's disease. In two cases under our observation the results have been disappointing; in a case of papulo-necrotic tuberculid an extensive outbreak occurred while the patient was under treatment, having had at the time eighteen injections of gold and sodium thiosulphate.

DR. ELLER: I would like to tell of a case of lupus vulgaris treated at the Post-Graduate Skin Clinic. The woman received twenty-five injections of triphal (gold and sodium thiosulphate) without any improvement. For the most part I have had no reactions but in the last six weeks two cases after one injection each of the domestic gold and sodium thiosulphate developed a widespread eruption of lupus erythematosus. I thought it possible that this was due to poor gold and ordered triphal. We gave each patient another injection of triphal after the eruption had subsided, and the patients again had widespread eruptions which also involved the mucous membranes. I have mentioned this to show that any preparation of gold may, in a susceptible individual, cause an exacerbation of lupus erythematosus, or an eruption that resembles this affection.

DR. BECHET: I have observed no real improvement in several cases of lupus vulgaris from the gold treatment, but did succeed in clearing up a very extensive disseminate lupus vulgaris of the small nodular type by means of gold.

DR. ABRAMOWITZ: I have had no experience as yet with gold treatment of sarcoid. At the New York Post-Graduate Medical School I saw a small lesion of lupus vulgaris on the chin disappear after four injections of sodium aurothiosulphate. The patient Dr. Wise referred to has remained well.

ERYTHEMA MULTIFORME. Presented by DR. BECHET.

M. S., a man, aged 35, had had for a year circinate lesions on the arms and in both axillae, and raised papular lesions on the trunk more or less annular, for a year. Several lesions undergoing involution appeared pigmented. A blood count gave the following results: red blood cells, 5,160,000; white cells, 18,000; hemoglobin, 90 per cent; polymorphonuclear, 52 per cent; lymphocytes, 25 per cent; mononuclear, 3 per cent; eosinophils, 20 per cent.

DISCUSSION

DR. CHARGIN: This patient has been under our care in the service of Dr. Goldenberg for several months, and for a period was an in-patient. When under our observation he presented a severe and extensive multiforme erythema, the lesions being of the type he presents tonight, but in addition he showed enormous subcutaneous hemorrhages which were very numerous and raised above the skin in tumor-like masses; none, however, ulcerated. Our treatment was apparently unavailing, the process had gradually undergone involution, and on discharge the man was practically well. He was, of course, studied, but no evidence was obtained indicating any type of leukemia. An unusual type of mycosis fungoides was one of the diagnoses considered.

DR. POLLITZER: My opportunities for observation in this case were very inadequate. In view of the high leukocyte count, however, and presence of the very extensive eruption of somewhat pruritic papules and small nodules, I would suggest that the possibility of a leukemic condition be considered.

CASE FOR DIAGNOSIS (SYRINGOCYSTOMA?). Presented by DR. BECHET.

T. B., a boy, aged 17, stated that the eruption had been present for four years. On the left side of the upper chest was a patch several inches in diameter. It consisted of grouped nodules and tumors, some hard, some softer, and more or less translucent. Scattered through the mass of small tumors were a large number of comedones.

DISCUSSION

DR. HOWARD FOX: While the clinical appearance is that of a syringoma, I notice that the lesions are extremely tender to the touch, and would suggest the diagnosis of leiomyoma.

CASE FOR DIAGNOSIS (ATROPHIC LICHEN PLANUS?). Presented by DR. BECHET.

S. G., a woman, aged 22, stated that fifteen months previously she noticed some pigmented patches on the back of the neck. On examination these patches presented a brownish, slightly scaly appearance. On either side of both breasts were fawn colored to white atrophic spots. The atrophy was quite distinct. There were no subjective sensations. Scrapings were negative for tinea versicolor. A biopsy showed only a dense infiltration of connective tissue, covered by a well developed epidermis. The rete pegs were well marked There seemed to be no definite pathologic change.

DISCUSSION

DR. BECHET: The case was presented for diagnosis, with atrophic lichen planus only as a suggestion. The lesions on the neck are of a brownish color and shiny appearance. The lesions on the sides of both breasts are atrophic.

DR. HIGHMAN: It does not look like lichen planus of any sort and does look like striate and macular atrophy. The probable absence of elastic tissue should be determined microscopically.

DR. BECHET: Linear and macular atrophy is not patchy, and not inflammatory. There is no evidence of pathological change other than the atrophy. The lesions in the case under consideration are brownish and shiny on the neck, and on the sides of the breasts are slightly scaly and distinctly atrophic.

NEUROTIC EXCORIATIONS. Presented by DR. BECHET.

R. Du B., a girl, aged 18, stated that the eruption had appeared every summer for three years. It usually began in June. She presented for examination a great number of excoriated, gouged out lesions all over both legs. As they healed they left very superficial scars. There were some lesions on the forearms, but they were very discrete and not nearly so inflammatory as those on the legs.

LEUCODERMA AQUISITUM CENTRIFUGUM (SUTTON). Presented by DR. ROSTENBERG.

A. B., was a girl of 13, whose previous history was irrelevant except for a severe case of scarlet fever in January, 1926, after which the present skin condition started. She was a well-developed, healthy looking girl, a light brunette with a healthy skin texture. She never had had any moles or pigmentation previously, nor had any one else in her family. The first lesion started on the forehead and gradually eight more patches developed, located about the face and neck. They were from ¼ to 2½ inches in diameter, either absolutely round or oval in shape. The color of each patch was that of vitiligo, except that there was no hyperpigmentation at the periphery. Exactly in the center of each patch there was a pinhead-sized rounded, slightly elevated, brownish maculo-papule which resembled a small pigmented nevus. There were no subjective symptoms of any kind. The patient stated that each lesion started with the appearance of the central dot, after which the surrounding skin would turn white and assume the present size in a few weeks. She also stated that some of the smaller lesions disappeared spontaneously, without leaving any trace.

DISCUSSION

DR. MCCAFFERTY: The patient presented by Dr. Rostenberg with the leukoderma lesion and the pigmented spot in the center is an interesting case and quite rare. This peculiar pigmented spot in the center of a leukoderma area has been referred to by Drs. Sutton and Shelmire. It appears that in such cases in which the pigmented spot is in the center of a leukoderma area, that the periphery of the leukoderma area is not hyperpigmented. It is possible that the pigmented cells exert a chemotactic action upon one another and accumulate into a pigmented spot. It does not seem to me that this is a coincidence in leukoderma, as it has been noted a few times before.

DR. ROSTENBERG: I have never seen any case like this before; either the condition is very rare, or considered of no importance and therefore not reported. In the literature I could find only about twelve cases reported, Sutton describing the first case in 1916. To my mind there are many interesting problems involved, especially as to the depigmentation and the central nevoid spot.

DR. GOODMAN: Loss of pigment about a hyperpigmented spot is common enough, although it has earned a special name unnecessarily. I think it is interesting to report attempts to sunburn depigmented areas with ultraviolet radiation. Although immediate reaction can be determined and there is a visible flush after four to eight hours, no pigment is induced.

CASE FOR DIAGNOSIS (LUPUS ERYTHEMATOSUS?). Presented by DR. FELDMAN.

R. W., a man, aged 50, a printer, had a negative previous history. His family history was also negative. The present condition started about six or seven years ago, and gradually progressed. On examination a large patch of alopecia was seen on the scalp. For the most part the patch was atrophic. Towards the periphery the atrophy was less marked. The follicles were dilated and erythematous. On the chin there was a large patch, the center of which was white and devoid of hair. The patch was not thinned, however; on the contrary it was thicker and firmer than the normal skin. The periphery of this patch was also devoid of hair, but was reddened, and presented telangiectasia. The patient received three gold thiosulphate injections, and appeared to be improved.

DISCUSSION

DR. POLLITZER: I saw the case only this evening, and my feeling is that the diagnosis of lupus erythematosus is extremely plausible.

ALOPECIA UNIVERSALIS. Presented by DR. BECHET.

J. D., a boy, aged 16, stated that he had had recurrent attacks of alopecia areata for five years, and that for two years he had had no hair growth at all. Inspection showed a total absence of hair from the entire body surface.

TUBERCULOSIS CUTIS. Presented by DR. BECHET.

F. D., a colored girl, aged 14, stated that the disease had been present for only nine months. Questioning elicited no specific history, and the Wassermann reaction was negative. Despite this she received eight intravenous injections of arsphenamine, with absolutely negative results. Practically the entire nose was covered with a crusted, lobulated, hypertrophic mass, almost a half inch thick. A biopsy confirmed the diagnosis.

NEURODERMATITIS OR DERMATITIS ARTEFACTA. Presented by DR. CANNON.

L. C., a man, aged 22, born in China, single, a student, was admitted to Vanderbilt clinic complaining of a chronic itching eruption of four years' duration, involving both elbows, hands, buttocks, and backs of both legs. The eruption started back of the knees, and after four months got entirely well. He remained well until about two months before presentation, when the eruption reappeared back of the knees and on the elbows, and had persisted until presented. The itching was worse in winter. The patient had had salves and "light" treatment without improvement. About three months ago a "pimple" appeared on the back of the left hand and gradually spread. About one month later another similar lesion appeared on the left wrist and over the base of the left thumb. On examination, the patient presented numerous quarter to palm sized patches which were erythematous, scaly and crusted in character, with some thickening of the surrounding skin. Some of the areas presented pustular and vesicular lesions. The Wassermann test one month ago was negative.

JOSEPH JORDAN ELLER, Secretary.

PHILADELPHIA DERMATOLOGICAL SOCIETY

Oct. 7, 1927

PATRICIA DRANT, M.D., *Presiding*

TUBERCULOSIS VERRUCOSA CUTIS RESEMBLING DERMATITIS. PRESENTED BY DR. CHAMBERS for DR. STOKES.

R. B., aged 15, white, presented a subacute dermatitis involving the anterior surface of the left tibia. The lesions were not so prominent nor as typical as they were a few weeks before presentation, for at that time definite pustulation was present, and the lesion was distinctly verrucous. The eruption would suggest a simple subacute dermatitis. The lesion had been treated and observed for almost a year as a simple patch of dermatitis. Its chronic tendency and the presence of some of the features of tuberculosis verrucosa cutis prompted the removal of tissue from the lesion. The histologic report from the Pepper Laboratory was tuberculosis of the skin. The lesion had undergone involution following treatment.

DISCUSSION

DR. STRAUSS: I do not believe that this is a patch of tuberculosis verrucosa cutis. At least, there is not any evidence of the true character of the lesion at present, for the usual diagnostic features are absent. The lesion appears to be a patch of simple lichenification.

DR. WEIDMAN: The section showed a tuberculous structure.

CASE FOR DIAGNOSIS. Presented by DR. WRIGHT.

G. A., aged 41, a white man, presented an eruption involving the face, neck and extensor surfaces of the forearms. The eruption consisted of groups of papules coalescing to form archiform lesions with central clearing, which was deeply pigmented. The color of the active lesions was a purplish red. On palpation the lesions forming the gyrate configurations were firm though somewhat boggy. The symmetrical distribution of the eruption was striking.

The patient was in the Philadelphia General Hospital some months previous to presentation with an eruption which was diagnosed as dermatitis herpetiformis, but which presented a different appearance from the present one. The present eruption appeared about eight weeks ago and has persisted since with an occasional development of new lesions. The itching was severe.

DR. WEIDMAN: Dr. Chambers and I have been observing this man since he first came into the hospital eight or nine weeks ago. When we first saw him, he had an eruption around the neck, over the extensor surfaces of both arms and over the backs of his hands that looked like an erythema multiforme but that was not of the herpes iris type. Vesicles were not present. The distribution was symmetrical enough, as one can see, for erythema multiforme, and there were a few lesions on the side of the face which were in keeping with the idea of an erythema multiforme. But, as can be seen, this is preeminently a chronic process. There is much residual pigmentation in the interior of the lesions, and at the margins there is infiltration.

The diagnosis made at first was "not tuberculosis or syphilis," as the infiltration suggested, as we felt that it was some other chronic inflammatory process. After a few weeks in the hospital, there was an acute flare-up; from the periphery of the lesions there was an almost uniform extension of edematous infiltration. We had considered particularly the possibility of this being tuberculous because the patient had previously been in the tuberculosis wards of the hospital, and because at present there are lesions in his chest

suggesting tuberculosis. His sputum has been negative for the tubercle bacilli on two examinations, and the final conclusion is that he has bronchiectasis.

The final diagnosis that Dr. Chambers and I came to was that this was a case of unusual erythema multiforme perstans. An interesting phase is the constitutional complication. His tongue has been continuously red, a little bit swollen, and the papillae have been prominent. Pellagra can be eliminated. He has not had diarrhea, and he is not constipated. The condition might be regarded, therefore, as a persistent erythema multiforme with unusual infiltrated margins an unusual factor being secretions from these papular lesions. Two biopsies were made; the first was unsatisfactory, and the second showed nothing like tuberculosis or syphilis. The sections have value only in the direction of eliminating tuberculosis and syphilis. There is marked edema of the epiderm and a subacute inflammation in the corium, with many plasma cells and eosinophils around the capillaries.

DISCUSSION

DR. STRAUSS: I am inclined to agree with the diagnosis of persistent erythema multiforme. Of course, it would be interesting to know just how old the individual lesions are. It seems to me that they have a tendency to disappear and new ones to appear, on account of the marked amount of pigmentation present, and I believe that the probable diagnosis is toxic erythema.

DR. WRIGHT: When I first saw this patient three days ago, I thought that the condition was a granuloma, either tuberculous or syphilitic, because of the infiltration of the individual lesions and the tendency to form gyrate patches. Yesterday Dr. Schamberg saw the patient for the first time, and he pronounced it a case of dermatitis herpetiformis. I think if one will look at the patient carefully, there are a number of things that would tend to confirm this diagnosis. In the first place, there is the tendency of the lesions toward grouping; second, there is considerable pruritus; third, there is multiformity of lesions; and fourth, the lesions tend to leave pigment as they disappear. I thought that Dr. Strauss was going to offer the same suggestion because he called attention to the pigmentation. I think we ought to consider seriously the possibility of this being a dermatitis herpetiformis.

DR. HIRSCHLER: There is some fine scarring in different places, and a tendency toward vesiculation — small vesicles in classical groups; there is also a strong tendency toward inflammation, and I am inclined to agree with Dr. Wright that it probably is a dermatitis herpetiformis.

DR. CHAMBERS: I wish to call your attention to the fact that the areas of distribution are not in the areas of pressure at all, but are in the distribution of an erythema multiforme. We had the good fortune to watch one of these lesions develop over a period of three days. It appeared simply as an urticarial, edematous, wheal-like lesion; there was the typical evolution and involuntion of erythema multiforme lesions.

DR. WEIDMAN: I am sympathetic toward the diagnosis of dermatitis herpetiformis because we do not know the basic pathology of dermatitis herpetiformis. And, if we were to divest the disease of its clinical history and think of it less from the standpoint of its clinical course and the changes that take place in the lesions, and think more of the fundamental pathologic process concerned, we could think that a good many cases of herpetiformis do behave in the way erythema multiforme behaves. It may be that this case is an intermediate expression between the two. The symmetrical distribution of lesions is erythema multiforme: on the other hand, in the itchiness, pigmentation and persistence; it resembles dermatitis herpetiformis. It may be that this is a case which will give a little light on the basal pathologic nature of dermatitis herpetiformis.

VITILIGO AND SARCOMATOSIS CUTIS. Presented by DR. WRIGHT.

S. G., aged 52, colored, had bruised the sole of his right foot at the age of 10. Following this injury, a pigmented spot remained at the location. Three years ago, the patient observed a lump growing at the side of this spot, and it was painful. He treated his foot with home remedies, but the condition became gradually worse, the borders gradually spread and the central part became depressed and finally ulcerated. About three months ago numerous nodules began to appear on other parts of the body.

At the time of presentation there was a fungating tumor on the sole of the right foot, roughly the size of a hen's egg. Scattered over the trunk and extremities were about a dozen subcutaneous nodules varying in size from that of a pea to that of a small orange. The larger nodules were lobulated, and the overlying skin was purplish red; one or two were bluish black. The nodules were firm on palpation.

The patient also presented a widespread vitiligo involving chiefly the face and chest.

The tumor on the foot was evidently the first lesion, and there was a resemblance of the lesion on the foot to a fungating lesion of mycosis fungoides, a condition described in textbooks as pseudomycotic sarcomatosis. The case was presented more for interest than for diagnosis.

DISCUSSION

DR. CORSON: I agree with the diagnosis perfectly.

DR. WEIDMAN: I would like to ask whether that black color has been there continuously since the patient has been under observation.

DR. WRIGHT: A black color persisted at the site of injury for forty-two years, according to the patient.

DR. WEIDMAN: The history of a pigmented spot for many years, then the appearance of a tumor, and finally secondary tumors is commonplace history for melanotic sarcomas. The secondary tumors are not pigmented, but that is not surprising. It frequently happens that a tumor originally black has shown no pigment in the secondaries. In at least two cases which I have seen at autopsy of sarcoma of the eye, with metastases to the liver, with the primary tumors partly black and partly white, the metastatic tumors did not show any pigment. It is not necessary that secondary tumors should always be black to classify them as melanotic.

SCLERODERMA. Presented by DR. KLAUDER.

Mrs. S., aged 38, white, had a scleroderma of eight years' duration. Patches varying in size and presenting a whitish, waxy appearance were scattered over the trunk and extremities. On palpation, the skin over these patches was depressed, felt smooth, and was bound to the subcutaneous tissues.

DISCUSSION

DR. KNOWLES: We all agree that this is a typical case of scleroderma, some of the lesions being of the morphea type. It reminds me of a case, presented by Dr. Ludy at the American Dermatological meeting held in Philadelphia a year ago, in which the patient had sugar in the urine. When this was controlled by insulin, the patches virtually disappeared, but if the patient was indiscreet in diet and if sugar accumulated, we found new areas of scleroderma. This is simply one phase of the subject. As long as we do not know the etiology, it seems that we have found a factor that may enter into the causation occasionally.

DR. HIRSCHLER: In a case of the acute type which I saw a few years ago, the lesions developed rapidly in various parts of the body on the flexor surfaces. I think Dr. Wright probably remembers the case that we saw together in

the West Philadelphia Hospital. The patient was given 0.25 grain (0.016 Gm.) of thyroid extract three times daily, and the dosage was increased to 1 grain (0.065 Gm.). After a few weeks, all of the lesions had disappeared.

XANTHOMA PALPEBRARUM. Presented by DR. CORSON and DR. DRANT.

J. P., aged 3, a child from the Children's Hospital, had an eruption of eight months' duration. The mother first noticed a small nodule under his chin and since then multiple small, soft tumors had appeared. These were most noticeable in the region of the eyes, but there were some on the trunk and the upper arm. Results of the biopsy were shown under the microscope and revealed the structure of xanthoma. There was also a frozen section stained with sudan III for fat.

DISCUSSION

DR. WEIDMAN: The sections show clearly xanthoma tuberosum of the giant cell variety, which simply means that the tissues are reacting by giant cells against the fatty tissue. The other cells are fibroblasts. I think we have all been looking hard for the yellow color on these lesions; yellow shows up better by daylight than by artificial light. There can be no doubt about the correctness of the diagnosis. It would be interesting to know the blood cholesterol. Dr. Sunderman and I conducted a survey among patients in the Philadelphia General Hospital who were known to have a high blood cholesterol (patients with nephritis, pregnancy, arteriosclerosis, diabetes), and in no case could we find anything under the skin that looked like xanthoma; so there is something more than hypercholesteremia to account for these lesions.

At Philadelphia General Hospital there is a case of xanthoma in which the patient has the highest blood cholesterol I have ever seen recorded, namely 1,050. The interesting thing about the patient is that xanthoma lesions developed at the site of herpes zoster which he developed while in the hospital. When he first was admitted to the hospital he had jaundice, an enlarged liver, a few scattered xanthoma lesions on the elbows and knees and one or two on the face. The largest crop of xanthoma lesions were in the zoster scar. Some old syphilitic scars which he had on the scalp did not show any yellow. It appears that in order for the lesions of xanthoma planum to develop, the scars must be present at the time the blood is surcharged with cholesterol; furthermore, they must be comprised of young fibrous tissue, the fibroblast cells of which have capacity for gathering up fatty substances and giving a yellow color to the lesions.

DR. HART-DRANT: The yellow color is present in daylight.

CASE FOR DIAGNOSIS. Presented by DR. STOKES.

The patient, aged 43, white, married, occupation tailor, had a cutaneous lesion over the right mandible of ten months' duration. There was no history of trauma. The lesion began as a slightly discolored papule 1½ mm. in diameter, and gradually spread in linear fashion to its present size and shape. The condition was asymptomatic. There had never been any evidence of dermatitis. Examination showed a linear patch about 3 inches in length extending along the angle of the right jaw. The advancing end was reddish and was covered with an adherent white scale. The process left a white superficial scar.

DISCUSSION

DR. CORSON: The appearance of this lesion suggests self-induced excoriation. I believe that the scarring is the result of self-produced traumatism. It is one of those cases of what might be called traumamania, when the patient

begins by pulling hairs and ends by deeply excoriating the skin. I think this scar has gradually extended as a result of the extension of the patient's manipulation.

DR. KNOWLES: I believe Dr. Corson's diagnosis of self-produced scarring is correct.

NEUROTIC EXCORIATIONS. Presented by DR. KLAUDER.

A woman, aged 29, had alleged spontaneous bleeding from the skin at the time of the menstrual period. Members of the family claimed that they saw drops of blood spontaneously come through the clear skin. She had lesions on her face and hands which looked like those of dermatitis factitia, but the members of the family maintained their story about having seen drops of blood appear while she was eating, so that there could be no question of her pricking the skin. If it is not dermatitis factitia, I think it is a rather extraordinary case.

DISCUSSION

DR. KNOWLES: I think we all agree that there is marked hyperthyroidism, marked exophthalmia and a tremor of the hand when the patient holds it out, and I think a cure is possible based on that point of view. Of course, it is a factitious dermatitis, the character of the lesions precluding any other diagnosis.

DR. KLAUDER: I thought the case had an interesting aspect even as a dermatitis factitia, from the standpoint of the patient's success in persuading her friends, her family and her physician, who is not easily convinced, that it is this condition. I tried to correlate the bleeding from the skin in this case with the famous case of the French girl, which occurred twenty years ago and which was mentioned in many papers, who apparently suffered from a somewhat similar condition. I also had in mind the stigmas of the saints, and investigated the psychologic attitude of the patient, but apparently this woman has no religious feeling about it. It cannot be correlated with any association of ideas on her part relative to the stigmas of the saints.

TUBERCULOSIS VERRUCOSA CUTIS. Presented by DR. STRAUSS.

A. T., a colored woman, aged 40, married, with two children living, had lesions on the face and arms of eight months' duration. The majority of the lesions were verrucous patches about 1 inch in diameter. There were some scattered areas of depigmentation about the same size. The verrucous lesions were deeply filtrated. The histologic report has not been returned, the patient had a plus 4 Wassermann reaction, but in spite of this we made a diagnosis of tuberculosis. She had had several injections of arsphenamine with little if any improvement. She thought some of the lesions on the arm had begun to involute, but I could not agree, and the one on the nose had shown absolutely no change. It is a curious fact that the larger lesions developed from the patches of depigmentation. The case is open for diagnosis.

DISCUSSION

DR. WRIGHT: In some respects this case resembles one that I described in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY two years ago which I called lichenoid sarcoid. Lesions appeared as areas of depigmentation; later they became thickened and lichenoid. The histologic examination showed the typical structure of sarcoid lesions. I believe that there is a possibility of finding acid-fast bacilli in sections of the depigmented areas just as Kyrle was able to demonstrate tubercle bacilli in the reddish patches which preceded development of true sarcoids.

LYMPHANGIOMA CIRCUMSCRIPTUM. Presented by DR. CHALMERS.

L. K., aged 20, colored, presented a growth in the pubic region of seven years' duration. A small elevation first appeared above the anus, gradually increased in number and extended anteriorly to the mons veneris. It is interesting to note that the upper border of the lesion has remained one-half inch from the posterior end of a scar which resulted from a previous operation. On puncture there exuded a serous fluid. The first elevation appeared three months after marriage. The patient had never been pregnant, and her Wassermann reaction had been negative on repeated occasions. Tissue was removed from the border of the lesion and sent to Dr. Weidman for examination. Dr. Weidman will discuss the histologic features.

DR. KNOWLES: If the lesion were on the back of the neck, I would suggest a diagnosis of dermatitis papillaris capilliti.

DR. WEIDMAN: That was one of the conditions which we did consider at first in diagnosis; at least a similar condition situated in the pubic region. And I might say that the thing that finally attracted my attention was the presence of the surgical scar. If that had not been there, we might have erred in the diagnosis until the slides were made. The interesting thing about this case, apart from its unusual location, is that the sections show that the lesion is not at all a lymphangioma, although generally known by that name. Somehow we cannot get away from names like that; they are established in dermatological nomenclature, but we ought to have our minds definitely turned to the fact that this is not a neoplasm; it is a lymphangiectasia.

There are always inflammatory signs as are shown in these sections. The presence of polymorphonuclears shows that the process in some parts, at least, is comparatively acute, that is, speaking in terms of change in tissue. My opinion is that it is a low grade chronic inflammation which has the habit of burrowing around under the skin.

DR. WRIGHT: From the standpoint of the patient, without regard to the diagnosis, I am inclined to think that roentgen-ray therapy ought to cause marked improvement.

MULTIPLE BENIGN CYSTIC EPITHELIOMA. Presented by DR. HART-DRANT.

S. C., aged 25, white, presented from twenty to thirty elevations on the forehead, eyelids, and cheeks, varying in size from that of a pinhead to that of a pea. Some of these had a cystic appearance; others showed superficial ulceration, with the borders rolled out and somewhat pearly. The lesions on the eyelids were closely grouped.

DISCUSSION

DR. WEIDMAN: I agree with the diagnosis of benign cystic epithelioma. What remains is to decide whether it is of the syringoma or the Brooke type, the histologic changes in the two being so different. There has been much discussion among dermatologists recently as to whether diagnosis of these two conditions can be made clinically.

Some of the members have commented on the ulceration which appears in some of the lesions and the possibility of a true malignancy having developed. Ulceration has, of course, been described in some cases of this type, but the clinical course has not been biologically malignant.

SCROFULODERMA OF THE WRIST. Presented by DR. KLAUDER.

S. G., aged 13, a colored girl, had an enormously swollen left wrist. On the dorsal surface were numerous large, fungating masses varying in size from that of a hickory nut to that of a hen's egg. These masses had a raw, weeping surface which bled on the slightest traumatization. The lesions had not been probed. Roentgen-ray examination was as follows: Roentgenogram of the hand showed a moth-eaten erosion of the proximal ends of the second and third metacarpal bones and of bodies of os magnum, trapezium and trapezoid. The primary point at which destruction of bone began seems to be their joint surfaces. For this reason, the changes suggest strongly those of a tuberculosis.

CARROLL S. WRIGHT, M.D., Secretary.

Book Reviews

DISEASES OF THE SKIN: A MANUAL FOR STUDENTS AND PRACTITIONERS. By ROBERT W. MACKENNA, Lecturer in Dermatology at the University of Liverpool. Second edition, volume eight. Price, $7.50. Pp. 450, with 143 illustrations in black and white and 36 colored plates. Baltimore: Williams & Wilkins Company, 1927.

The second edition of MacKenna's work comes to us somewhat enlarged and brought up to date. It is a sound, careful presentation of the subject after the English manner; that is, without emphasis on precise refinements but with a comprehensive grasp of the subject and a philosophic attitude in its consideration. The illustrations, as a rule, are good and well selected. Taking the book as a whole, it is a useful presentation of dermatology for the student or for the practitioner and can be recommended.

THE PRACTICE OF UROLOGY AND SYPHILOLOGY: A SURGICAL TREATISE ON GENITO-URINARY DISEASES AND SYPHILIS. By CHARLES H. CHETWOOD, M.D., LL.D., Attending Urologist and Director of Service French Hospital. Fourth edition. Price, $9. Pp. 879, with illustrations. Large 8vo. New York: William Wood & Company, 1927.

Our interest in this work lies, of course, in the part of it relating to syphilis. However valuable the treatise is on urology, little can be said of its consideration of syphilis. In a book of 852 pages on urology and syphilis, 111 pages are devoted to syphilis. The space allowed for it, of course, is utterly inadequate to permit a full consideration of the subject. It is a purely elementary statement, and it is not prepared with great care. One, in fact, comes on careless statements which startle him. For example, in a paragraph of eleven lines on paternal transmission of syphilis — which is all that is given to that subject — the following statement occurs (p. 748): "Paternal independent of maternal transmission is much less common than the reverse, as it is possible for a syphilitic father to beget a healthy child . . . ." A reader ignorant of the fact might clearly infer from this that it is impossible for a syphilitic mother to beget a healthy child. The preceding paragraph of ten lines on maternal transmission is hardly any clearer. Six lines more than one page is given to the whole subject of hereditary transmission of syphilis. He calls the organism of syphilis *Treponema pallida*. If there were not the conclusive reason of overwhelming usage for *Spirochaeta pallida*, the mistake of using *Treponema pallida* for *Treponema pallidum* — which one so often sees — would be sufficient for wishing to see the word *Spirochaeta* generally adopted. The illustrations are almost diagrammatic. They belong to a previous generation.

Directory of Dermatologic Societies

NATIONAL DERMATOLOGIC SOCIETIES*

AMERICAN DERMATOLOGICAL ASSOCIATION

Otto H. Foerster, President, Colby-Abbot Bldg., Milwaukee.
C. Guy Lane, Secretary, 416 Marlborough St., Boston.

SECTION ON DERMATOLOGY AND SYPHILOLOGY, SCIENTIFIC ASSEMBLY, AMERICAN MEDICAL ASSOCIATION

Udo J. Wile, Chairman, Ann Arbor, Mich.
William H. Guy, Secretary, Jenkins Arcade, Pittsburgh.

BRITISH ASSOCIATION OF DERMATOLOGY AND SYPHILOLOGY (CANADIAN BRANCH)

D. King Smith, President, 122 Bloor St. West, Toronto.
E. J. Trow, Secretary, 122 Bloor St. West, Toronto.

LOCAL DERMATOLOGIC SOCIETIES

ATLANTA DERMATOLOGICAL SOCIETY

Cosby Swanson, President, 436 Peachtree St., Atlanta, Ga.
Howard Hailey, Secretary, Candler Bldg., Atlanta, Ga.

BALTIMORE AND WASHINGTON DERMATOLOGICAL SOCIETY

C. Augustus Simpson, President, 1610, 20th St., N. W., Washington, D. C.
Leon Ginsburg, Secretary, 1800 N. Charles St., Baltimore.

BRONX DERMATOLOGICAL SOCIETY

Louis Chargin, Chairman, 116 W. 87th St., New York.
Raphael Breakstone, Secretary-Treasurer, 783 Beck St., New York.

BROOKLYN DERMATOLOGICAL SOCIETY

Louis Chargin, President, 47 Halsey St., Brooklyn.
E. Almore Gauvain, Secretary-Treasurer, 47 Halsey St., Brooklyn.

CHICAGO DERMATOLOGICAL SOCIETY

F. E. Senear, President, 25 E. Washington St., Chicago.
E. A. Oliver, Secretary, 25 E. Washington St., Chicago.

CINCINNATI DERMATOLOGICAL SOCIETY

E. B. Tauber, President, 19 W. 7th St., Cincinnati.
H. L. Claassen, Secretary, 4 W. 7th St., Cincinnati.

---

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up-to-date.

CLEVELAND DERMATOLOGICAL SOCIETY

C. G. LaRocco, President, Schofield Bldg., Cleveland.
James R. Driver, Secretary, Hanna Bldg., Cleveland.

DETROIT DERMATOLOGICAL SOCIETY

Henry S. Bartholomew, President, State Savings Bank Bldg., Lansing, Mich.
Ralph A. Perkins, Secretary, 276 Erskine St., Detroit.

DERMATOLOGIC SECTION, LOS ANGELES COUNTY MEDICAL ASSOCIATION

Irving R. Bancroft, Chairman, 412 W. 6th St., Los Angeles.
Louis F. X. Wilhelm, 1401 S. Hope St., Los Angeles.

LOUISIANA DERMATOLOGICAL SOCIETY

J. N. Roussel, President, 3503 Prytania St., New Orleans.
Thomas A. Maxwell, Secretary, 1119 Union Indemnity Bldg., New Orleans.

MANHATTAN DERMATOLOGICAL SOCIETY

Joseph Jordan Eller, Chairman, 100 W. 59th St., New York.
David L. Satenstein, Secretary, 116 W. 58th St., New York.

MINNESOTA DERMATOLOGICAL SOCIETY

Henry E. Michelson, President, Donaldson Bldg., Minneapolis.
D. D. Turnacliff, Secretary, Yeates Bldg., Minneapolis.

NEW ENGLAND DERMATOLOGICAL SOCIETY

C. Guy Lane, President, 416 Marlborough St., Boston.
Arthur M. Greenwood, Secretary, 416 Marlborough St., Boston.

NEW YORK ACADEMY OF MEDICINE, SECTION ON DERMATOLOGY AND SYPHILIS

Edward R. Maloney, Chairman, 853 7th Ave., New York.
Joseph Jordan Eller, Secretary, 100 W. 59th St., New York.

NEW YORK DERMATOLOGICAL SOCIETY

John E. Lane, President, 59 College St., New Haven, Conn.
Paul E. Bechet, Secretary, 30 E. 40th St., New York.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, SECTION ON DERMATOLOGY AND SYPHILOLOGY

Howard Fox, Chairman, 144 E. 54th St., New York.
Earl D. Osborne, Secretary, 471 Delaware Ave., Buffalo.

PHILADELPHIA DERMATOLOGICAL SOCIETY

Patricia Hart-Drant, President, 2026 Locust St., Philadelphia.
Carroll S. Wright, Secretary, 1402 Spruce St., Philadelphia.

PITTSBURGH DERMATOLOGICAL SOCIETY

George J. Busman, Secretary, Union Trust Bldg., Pittsburgh.
Lawrence G. Beinhauer, President, Jenkins Arcade, Pittsburgh.

ST. LOUIS DERMATOLOGICAL SOCIETY

Robert H. Davis, President, Missouri Bldg., St. Louis.
Norman Tobias, Secretary, Missouri Bldg., St. Louis.

SAN FRANCISCO DERMATOLOGICAL SOCIETY

Harry E. Alderson, Chairman, 490 Post St., San Francisco.
Ernest K. Stratton, Secretary and Treasurer, 490 Post St., San Francisco.

Index to Current Literature

DERMATOLOGY

Active Immunization in Scarlet Fever. J. H. Litterer, J. Tennessee M. A. **20:** 253 (Nov.) 1927.

Alkali Treatment of Scarlet Fever. E. H. J. Berry, Lancet **2:**858 (Oct. 22) 1927.

Amato Bodies in Scarlet Fever. J. A. Toomey and J. A. Gammel, Am. J. Dis. Child. **34:**841 (Nov.) 1927.

Artificially Increased Permeability of Skin to Bactericidal Light Rays. W. E. Pauli and H. Kliewe, Strahlentherapie **26:**767, 1927.

Bacteriology of Pemphigus. C. M. Hasselmann, München. med. Wchnschr. **74:** 1716 (Oct. 7) 1927.

Carbon Dioxide Snow in Treatment of Leprosy. A. Paldrock, Arch. f. Schiffs.-u. Tropen-Hyg. **31:**459 (Oct.) 1927.

Case of Injury to Skin and Eyes by Liquid Sulphur Dioxide. B. R. Kennon, J. Indust. Hyg. **9:**486 (Nov.) 1927.

Chemistry of Leprosy Organism: IV. A. Paldrock, Am. J. Trop. Med. **7:**405 (Nov.) 1927.

Comparison of Reactions to Dermovaccine and to Neurovaccine for Smallpox. S. Thomas, J. Infect. Dis. **41:**336 (Nov.) 1927.

Consecutive Herpes Zoster and Varicella with Varicella in Contact. D. E. H. Cleveland, Canad. M. A. J. **17:**1299 (Nov.) 1927.

Cowpox Vaccination and Postvaccinal Encephalitis. H. Aldershoff, Nederl. Tijdschr. v. Geneesk. **71:**1825 (Oct. 29) 1927.

Cure of Pruritus Ani by Operation. C. E. Corlette, M. J. Australia **2:**580 (Oct. 22) 1927.

Cutaneous Roentgen-Ray and Radium Therapy. George M. MacKee, J. A. M. A. **90:**28 (Jan. 7) 1928.

Dermatologic Considerations of Interest. A. Schalek, J. Kansas M. Soc. **27:** 359 (Nov.) 1927.

Dermoid Cyst in Bladder. T. Murata, J. Oriental Med. **7:**61 (Sept.) 1927.

Development of Measles Virus. G. Petényi, Klin. Wchnschr. **6:**1953 (Oct. 8) 1927.

Emphysema of Skin and General Emphysema in Gastroduodenal Perforations. S. Korach, Zentralbl. f. Chir. **54:**2832 (Nov. 5) 1927.

Epidemiology of Scarlet Fever. F. von Bormann, Klin. Wchnschr. **6:**1852 (Sept. 24) 1927.

Erysipelas in Infants. E. Foster and F. Arancibia, Semana méd. **34:**890 (Oct. 6) 1927.

Etiologic Classification of Skin Diseases. N. V. Greco, Semana méd. **34:**649 (Sept. 15) 1927.

Etiology and Serum Therapy of Scarlet Fever. V. Bie, A. Larsen and M. S. Andersen, Ugesk. f. Laeger **89:**981 (Oct. 27) 1927.

Etiology and Serum Therapy of Scarlet Fever. V. Bie, A. Larsen and M. S. Andersen, Ugesk. f. Laeger **89:**1001 (Nov. 3) 1927.

Etiology and Serum Treatment of Scarlet Fever. M. S. Andersen, Ugesk. f. Laeger **89:**947 (Oct. 20) 1927.

Etiology of Granuloma Inguinale: Eighteen Cases. M. F. Campbell, Am. J. M. Sc. **174:**670 (Nov.) 1927.

Exfoliative Dermatitis. H. D. Haldin-Davis, Brit. J. Dermat. **39:**435 (Nov.) 1927.

Flax Dermatitis. M. D'Agostino, Semana méd. **34:**642 (Sept. 8) 1927.

General Treatment of Skin Diseases. M. E. Polano, Nederl. Maandschr. v. Geneesk. **14:**421, 1927.

Herbs in Treatment of Warts. Hissard, Bull. Soc. franç. de dermat. et syph., July, 1927, p. 695.

Heredity in Uniovular Twins: Etiology of Birth Marks. E. Meirowsky, Virchows Arch. f. path. Anat. **266**:313 (Nov. 3) 1927.
Herpes Zoster and Coincident Varicella. K. Scheer, Jahrbh. f. Kinderh. **117**: 343 (Oct.) 1927.
Hypoglycemia in Scleroderma: The Metabolism in Eight Cases with Reference to the Function of Glands of Internal Secretion. Warfield T. Longscope, J. A. M. A. **90**:1 (Jan. 7) 1928.

Incidence of Scarlet Fever Streptococci in Throats of Diphtheria Patients. P. S. Rhoads, J. Infect. Dis. **41**:377 (Nov.) 1927.
Interpretation of Action Potential in Cutaneous and Muscle Nerves. J. Erlanger, Am. J. Physiol. **82**:644 (Nov. 1) 1927.

Juvenile Acne: Treatment. E. D. Chipman, California & West. Med. **27**:650 (Nov.) 1927.

Lichen Planus, Provoked by Neoarsphenamine. L. M. Pautrier, Bull. Soc. franç. de dermat. et syph., July, 1927, p. 476.
Local and General Action of Roentgen Rays. A. Beck and D. Engel, Strahlentherapie **26**:729, 1927.

Mass Experiment in Active Immunization Against Scarlet Fever. I. A. Morainis, Profilakticheskaya Med. **6**:8 (Aug.-Sept.) 1927.

New Function of the Skin. Editorial, J. A. M. A. **89**:2196 (Dec. 24) 1927.

Ocular Pemphigus. G. M. Constans, Am. J. Ophth. **10**:810 (Nov.) 1927.
Operative Treatment of Pruritus. J. Vorschütz, Zentralbl. f. Chir. **54**:2821 (Nov. 5) 1927.
Outbreak of Erythema Nodosum. M. Mitman, Lancet **2**:751 (Oct. 8) 1927.

Pathogenesis of Hemorrhagic Form of Smallpox. S. Hoshizaki and J. Moriwaki, J. Oriental Med. **7**:54 (Sept.) 1927.
Pellagra. P. Albertoni and P. Tullio, Policlinico **34**:493 (Oct. 1) 1927.
Pellagra: Infection or Due to Diet? J. L. Jelks, J. Tennessee M. A. **20**:233 (Nov.) 1927.
Pemphigus: Blood Transfusion. L. Hollander, Brit. J. Dermat. **39**:450 (Nov.) 1927.
Permeability of Animal and Human Skin in Visible Part of Spectrum. W. E. Pauli and H. Dennig, Strahlentherapie **26**:761, 1927.
Phototherapeutics of Dermatology: Basic Underlying Principles. H. Goodman, New York State J. Med. **27**:1231 (Nov. 15) 1927.
Protein Therapy in Diseases of Skin and of Genital Organs. W. Scholtz, Deutsche med. Wchnschr. **53**:1725 (Oct. 7) 1927.

Question of Individuality of Scarlet Fever Streptococci. F. Szirmai, Klin. Wchnschr. **6**:1902 (Oct. 1) 1927.

Radium in Dermatology. W. H. Guy, Atlantic M. J. **31**:52 (Nov.) 1927.
Radium Therapy in Certain Skin Lesions. E. L. Eaton, New York State J. Med. **27**:1251 (Nov. 15) 1927.
Reaction to Stimuli of Blood Vessels of Human Skin. W. Feldberg, Klin. Wchnschr. **6**:1863 (Sept. 24) 1927.
Relation of Dick Test to Prevalence of Scarlet Fever in Grand Lebanon. L. W. Parr and M. S. Avery, J. Preventive Med. **1**:529 (Nov.) 1927.
Results of Schick and Dick Tests in Rio de Janeiro. J. A. Doull, M. J. Ferreira and D. Parreias, J. Preventive Med. **1**:513 (Nov.) 1927.
Rheumatism with Pseudophlegmonous Skin Edema. J. R. Paso, Semana méd. **34**:604 (Sept. 8) 1927.
Rodent Ulcer. A. H. Pirie, Canad. M. A. J. **17**:1326 (Nov.) 1927.

Scarlet Fever of Toxic Type. C. Banks, Lancet **2**:968 (Nov. 5) 1927.
Scarlet Fever Problem. H. Frank, Klin. Wchnschr. **6**:1837 (Sept. 24) 1927.
School Endemic of Erythema Nodosum. A. Wallgren, Jahrbh. f. Kinderh. **117**: 313 (Oct.) 1927.
Scleroderma Treated with Neoarsphenamine and Organotherapy. M. Pinard, P. Vernier and A. Corbillon, Bull. Soc. franç. de dermat. et syph., July, 1927, p. 459.

Scurvy in Men Living Alone. E. Meulengracht, Acta med. Scandinav. **67**:43 (Oct. 8) 1927.
Skin Cancer: Diagnosis and Treatment. W. H. Hailey, J. M. A. Georgia **16**: 376 (Nov.) 1927.
Skin Inflammation from Macassar Wood. A. Buschke and A. Joseph, Deutsche med. Wchnschr. **53**:1641 (Sept. 23) 1927.
Skin Reactions to Ascaris Extracts. R. Hoeppli and H. Vogel, Arch. f. Schiffs.-u. Tropen-Hyg. **31**:477 (Oct.) 1927.
Smallpox Vaccination with Neutralized Vaccine. Wagemans, Arch. méd. belges **80**:497 (Oct.) 1927.
Spleen in Measles. E. Friedman, Am. J. Dis. Child. **34**:854 (Nov.) 1927.
Streptococcus of Normal Skin. T. Photinos, Bull. Soc. franç. de dermat. et syph., July, 1927, p. 494.
Symposium on Lichen Planus. Bull. Soc. franç. de dermat. et syph., July, 1927, p. 507.

Tannic Acid Treatment of Burns. A. Floresco, Gaz. d. hôp. **100**:1281 (Sept. 28) 1927.
Thyroid Medication in Skin Disease. P. B. Mumford, Lancet **2**:863 (Oct. 22) 1927.
Treatment of Carbuncles. L. Carp, Ann. Surg. **86**:702 (Nov.) 1927.
Treatment of Dermatitis Herpetiformis. F. Jung, Klin. Wchnschr. **6**:1860 (Sept. 24) 1927.
Treatment of Lepropsy with Certain Gold Preparations. F. C. Eubanas and B. de Vera, J. Philippine Islands M. A. **7**:319 (Sept.) 1927.
Treatment of Skin Diseases by Means of Bucky's "Grenz" (Infra-Roentgen) Rays. H. Fuhs, Strahlentherapie **26**:657, 1927.
Treatment of Skin Diseases with Alpha and Beta Rays. S. Lomholt and J. C. Jacobson, Hospitalstid. **70**:885 (Sept. 22) 1927.
Treatment of Tineal Dermatitis of the Extremities. William Allen Pusey, J. A. M. A. **90**:27 (Jan. 7) 1928.
Tuberculosis of Skin. L. M. Smith, Southwestern Med. **11**:451 (Oct.) 1927.

Ultraviolet Treatment of Herpes. M. Weinbren, Lancet **2**:865 (Oct. 22) 1927.
Use of Monopolar Current in Skin Blemishes. A. E. Schiller, Arch. Phys. Therap. **8**:569 (Nov.) 1927.

Vaccination Against Smallpox with Neurovaccine of Levaditi. E. Gallardo, Seuchenbekämpfung-Infektionskrankh. **4**:195, 1927.

SYPHILOLOGY

Bismuth as Antisyphilitic Medicament. M. M. Coplan and R. J. Holmes, J. Florida M. A. **14**:178 (Oct.) 1927.

Case of Landry's Syndrome of Syphilitic Origin. L. Cornil and J. Haushalter, Bull. Soc. franç. de dermat. et syph., July, 1927, p. 709.
Case of Pseudotabes Syphilitica (Oppenheim) in Child. E. Kramár, Monatschr. f. Kinderh. **36**:538 (Sept.) 1927.
Case of Splenic Anemia Developing Like Banti's Disease in Syphilitic Patient. Maniel and Née, Arch. d. mal. du coeur. **20**:609 (Sept.) 1927.
Case of Subcutaneous Fibroid Syphiloma. C. R. Lane, Lancet **2**:755 (Oct. 8) 1927.
Comparative Study of Kahn and Wassermann Tests in 6,000 Cases. E. F. D'Ath, M. J. Australia **2**:346 (Nov. 5) 1927.

Diagnosis of Syphilitic Bone Lesions. J. J. Clark, J. M. A. Georgia **16**:369 (Nov.) 1927.
Differential Diagnosis of Congenital Syphilis. E. Slawik, Arch. f. Kinderh. **82**:168 (Sept. 30) 1927.

Late Lesions of Acquired Syphilis in Lung Complicating Tuberculosis. H. Lossen, Beitr. z. Klin. d. Tuberk. **66**:761 (Aug. 25) 1927.

Manifestations of Congenital Syphilis in Infants. P. Rueda, Arch. latino-am. de pediat. **21**:954 (Aug.) 1927.

Neurosyphilis. N. C. Borberg, Bibliot. f. Laeger **119**:739 (Oct.) 1927.

Pyretotherapy in General Paralysis by Intravenous Injection of Antichancroid Vaccine. Sicard, Haguenau and Wallich, Presse méd. **35**:1121 (Sept. 14) 1927.

Quantitative Determination of Kahn Reaction. J. G. Hopkins and E. W. Rockstraw, J. Lab. & Clin. Med. **13**:146 (Nov.) 1927.

Skin Tests with Suspensions of Killed Spirochaeta Pallida. W. Pockels, Monatschr. f. Kinderh. **36**:501 (Sept.) 1927.

Spreading and Absorption of Different Types of Bismuth Preparations, Introduced by Intramuscular and Subcutaneous Injection. W. F. von Oettingen, T. W. Todd and T. Sollmann, J. Pharmacol. & Exper. Therap. **32**:67 (Nov.) 1927.

Standardized Treatment in Early Syphilis as Means of Eliminating Neurosyphilis. A. B. Cannon, New York State J. Med. **27**:1243 (Nov. 15) 1927.

Syphilis and Internal Diseases. G. Marañón, R. Comas and J. Jimena, Siglo méd. **80**:317 (Oct. 1) 1927.

Syphilis of Bladder. W. S. Pugh, M. J. & Record **126**:533 (Nov. 2) 1927.

Tonus Bandage in Tabes Dorsalis. E. Brinkmann, Klin. Wchnschr. **6**:1950 (Oct. 8) 1927.

Treatment of Commoner Syphilitic Lesions of Eye. J. G. Hopkins, Arch. Ophth. **56**:543 (Nov.) 1927.

Treatment of Congenital Syphilis. A. Buschke and M. Gumpert, Klin. Wchnschr. **6**:1904 (Oct. 1) 1927.

Treatment of Early Syphilis in Health Resorts. S. S. Nalbandoff, Klin. med. **5**:879 (Sept.) 1927.

Wassermann Reaction: Kolmer Modification. J. A. Kolmer, J. Urol. **18**:503 (Nov.) 1927.

Wassermann Reaction with Increased Amounts of Serum. H. Felke, München med. Wchnschr. **74**:1702 (Oct. 7) 1927.

THE ARCHIVES OF DERMATOLOGY AND SYPHILOGY is published by the American Medical Association to stimulate research and to disseminate knowledge in these departments of medicine.

Manuscripts for publication, books for review, and correspondence relating to the editorial management should be sent to Dr. W. A. Pusey, Editor-in-Chief, 7 West Madison Street, Chicago, or to any other member of the Editorial Board. Communications regarding subscriptions, reprints, etc., should be addressed, ARCHIVES OF DERMATOLOGY AND SYPHILOGY, American Medical Association, 535 North Dearborn Street, Chicago.

Articles are accepted for publication on condition that they are contributed solely to the ARCHIVES OF DERMATOLOGY AND SYPHILOGY. Manuscripts must be typewritten, preferably double space, and the original copy should be submitted. Zinc etchings and halftones of illustrations will be supplied by the Association when the original illustrations warrant.

Footnotes and bibliographies should conform to the style of the Quarterly Cumulative Index Medicus, published by the American Medical Association. This requires in order given: name of author, title of article, name of periodical with volume, page, month — day of month if weekly — and year. A complete list of abbreviations for standard periodicals, together with a full discussion of the style of the A. M. A. publications, appears in The Art and Practice of Medical Writing, a comprehensive book on the preparation of medical manuscripts, published by the American Medical Association. Price, $1.50.

Matter appearing in the ARCHIVES OF DERMATOLOGY AND SYPHILOGY is covered by copyright, but as a rule, no objection will be made to its reproduction in reputable medical journals, if proper credit is given. However, the reproduction for commercial purposes of articles appearing in the ARCHIVES OF DERMATOLOGY AND SYPHILOGY, or in any of the other publications issued by the Association, will not be permitted.

Authors will receive one hundred reprints free; additional reprints may be obtained at cost.

The ARCHIVES OF DERMATOLOGY AND SYPHILOGY is published monthly. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75, including postage. Single copies, 85 cents, postpaid.

Checks, etc., should be made payable to the AMERICAN MEDICAL ASSOCIATION.

OTHER PERIODICAL PUBLICATIONS
of the American Medical Association

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION—Weekly. Covers all the medical sciences and matters of general medical interest. Illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $6.50; foreign, $7.50. Single copies, 20 cents.

ARCHIVES OF INTERNAL MEDICINE—Monthly. Devoted to the publication of advanced, original clinical and laboratory investigations in internal medicine. Illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75. Single copies, 75 cents.

ARCHIVES OF NEUROLOGY AND PSYCHIATRY—Monthly. A medium for the presentation of original articles on nervous and mental diseases, with abstracts from foreign and domestic literature, book reviews, society transactions, etc. Illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75. Single copies, 85 cents.

AMERICAN JOURNAL OF DISEASES OF CHILDREN—Monthly. Presents pediatrics as a medical science and as a social problem. It includes carefully prepared collective abstracts based on recent pediatric literature, abstracts from foreign and domestic literature, book reviews, society transactions, etc. Illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75. Single copies, 75 cents.

ARCHIVES OF SURGERY—Monthly. Devoted largely to the investigative and clinical phases of surgery, with monthly reviews on orthopedic and urologic surgery. Well illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75. Single copies, 85 cents.

ARCHIVES OF OTOLARYNGOLOGY—Monthly. A medium for the presentation of original articles on diseases of the ear, nose and throat, with abstracts from foreign and domestic literature, book reviews, the transactions of special societies, etc. Illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75. Single copies, 75 cents.

ARCHIVES OF PATHOLOGY AND LABORATORY MEDICINE—Monthly. A periodical devoted to the publication of original contributions in the field of pathology, with abstracts from foreign and domestic literature, book reviews, the transactions of special societies, etc. Illustrated. Annual subscription price (two volumes): Domestic, $5.00; Canadian, $5.40; foreign, $5.75. Single copies, 75 cents.

QUARTERLY CUMULATIVE INDEX MEDICUS—Quarterly. A complete subject and author index to the world's current medical literature of this world. Issued four times a year. Second and fourth volumes bound for permanent reference. Subscription price, calendar year: Domestic, $8.00; Canadian, $8.50; foreign, $8.75.

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn St. CHICAGO

CONTENTS

PAGE

An Intracutaneous Method of Treating Sepsis: A Preliminary Report. Arthur William Stillians, M.D., and Theodore Kenneth Lawless, M.D., Chicago 153

Lymphogranulomatosis Cutis: Hodgkin's Disease. Jerrold E. Miller, M.D., San Francisco 156

Epilation with Thallium Acetate in the Treatment of Ringworm of the Scalp in Children. Botho F. Feldbausch, M.D., New York 182

Fungi and Fungous Diseases: Lecture III. Also Castor Oil. C.M.G., M.D., New Orleans 194

The Use of the "Grenz" (Infra-Red Ray) Rays in Dermatologic Conditions: Preliminary Report of Clinical and Biologic Observations. Joseph J. Eller, M.D., and Gustav Bucky, M.D., New York 231

Abstracts from Current Literature 239

Society Transactions:

Chicago Dermatological Society 252

Brooklyn Dermatological Society 261

New York Academy of Medicine, Section on Dermatology and Syphilis 266

Philadelphia Dermatological Society 278

Book Reviews 285

Directory of Dermatologic Societies 286

Index to Current Literature 289